Index to Volume 34

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How to Use This Index

This index is of similar form to the Cumulative Indexes of this journal, covering, respectively, Volumes 1–10, Volumes 11–20, and Volumes 21–30, and is composed of three main divisions: the Author Index to Volume 34, the Inventor Index to Acoustical Patents, Volume 34, and the Analytic Subject Index to Volume 34.

The Subject Index to Volume 34 of *The Journal of the Acoustical Society of America* lists the titles of all the papers, abstracts, and patents under thirteen section headings as follows: 0, General, Unclassified; 1, Acoustical Society of America; 2, Architectural Acoustics; 3, Books, Bibliographies, and Surveys; 4, The Ear and Hearing; 5, Applied Acoustics, Instruments and Apparatus; 6, Musical Instruments and Music; 7, Noise; 8, Standards; 9, Speech Communication; 10, Ultrasonics (Supersonics); 11, Waves and Vibrations; 12, Mechanical Vibration and Shock; and 13, Underwater Sound. Each of these sections is further divided into a considerable number of decimally numbered subjects, which are listed below under the heading, "Classification of Subjects." Each subject is divided into eight parts entitled Papers, Letters to the Editor, Abstracts, Subtitles, Patents, Book Reviews, News, and Errata. Under Papers will be found the original titles of all the papers appearing in the journal on that subject. Under Abstracts are listed the titles of the papers presented at meetings. Since a great amount of valuable material appears in the journal in papers whose titles cannot fully describe all the subjects which the papers cover, some subtitles of papers have been indexed under the heading Subtitles. When subtitles covering the material did not appear in the paper, they were written; the captions of some of the figures were also included under this heading. Thus, while the Subtitles portion of the index is informal, it is hoped that it will increase the probability of finding the desired information quickly. All patents appearing in the journal are listed under the heading Patents. New classifications are added from time to time. The year in which classifications are added appears in parentheses after the subject classes.

The reader or his librarian should go over the list of errata classified under 0.1, and either make the indicated corrections in the original papers or enter a note beside the title of the original paper—"See Erratum, Vol. XX, p. XXX."

References on most subjects can be located immediately by a logical use of the Classification of Subjects below. In case the reference sought is of an unusual character such that there is uncertainty as to the subject under which it might have been classified, this can usually be found quite quickly by the process of eliminating the sections and subjects under which it is quite improbable that it might have been listed. In case of doubt, a title has often been listed under a number of subjects.

Obviously, the Author or Inventor Index is more convenient than the Subject Index when one knows the name of the author of the paper or the inventor of the patent in which he is interested.

The References to Contemporary Papers on Acoustics are identified in each issue by the same decimal numbers listed below, and may be consulted for references in other journals than our own. In Volume 34 these references will be found on pages 138, 360, 688, 996, 1286, and 1798.

Classification of Subjects

0. General, Unclassified

- 0.1 Errata
- 0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society
- 0.3 Nonacoustical Theories
- 0.4 Nonacoustic Devices

1. Acoustical Society of America

- 1.1 General, Unclassified
- 1.2 Constitution and Bylaws
- 1.3 History
- 1.4 Honorary Members
- 1.5 Meetings
- 1.6 Members and Membership Lists
- 1.7 Committee Activities

2. Architectural Acoustics

- 2.1 General, Unclassified
- 2.2 Auditorium Design. (See also 7.6.)
- 2.3 Studies of Existing Auditoria and Acoustic Enclosures
- 2.4 Sound Absorption. Theory and Methods of Measurements of. (See also 2.5.)
- 2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances
- 2.6 Noise Reduction by Increased Room Absorption
- 2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)
- 2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)
- 2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)
- 2.10 Sound Insulating Structures. Values of Transmission Coefficients
- 2.11 Vibration Insulating Supports. (See also 5.21 and 12.3i.)
- 2.12 Damping of Panels
- 2.13 Anechoic Chamber Design. Wedges

3. Books, Bibliographies, and Surveys

- 3.1 Books and Book Reviews
- 3.2 Bibliographies
- 3.3 Patents
- 3.4 Surveys, Historical and Philosophical Literature

4. The Ear and Hearing

- 4.1 General, Unclassified
- 4.2 Anatomy and Physiology of the Ear
- 4.3 Binaural Hearing. Localization
- 4.4 Deafness. (See also 5.5.)
- 4.4.5 Auditory Fatigue, Temporary Threshold Shift

4.5 Instruments Relating to Hearing, and for the Testing of Hearing. (See also 5.5.)
4.6 Loudness, Threshold Determinations
4.7 Masking. (See also 5.5.)
4.8 Phase Effects. (See also 4.3.)
4.9 Pitch
4.10 Subjective Tones
4.11 Theories of Hearing
4.12 Timbre
4.13 Ear Acoustical Impedance
4.14 Ear Protectors, Earplugs
4.14 Perception of Signals. Detection of Signals in Noise

5. Applied Acoustics, Instruments and Apparatus. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3Z, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified
5.2 Amplifiers and Attenuators
5.3 Acoustic Impedance Measurement. (See also 11.4 and 12.3Z.)
5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. (See also 5.15 and 12.3f.)
5.5 Audiometers. (See also 4.4 and 4.5.)
5.5.1 Broadcasting
5.6 Chronographs
5.7 Frequency Standards, Frequency Measuring and Recording Instruments
5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)
5.9 Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)
5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n)
5.11 Oscillators, Electrical and Mechanical
5.12 Phase Meters
5.13 Public Address Systems and Sound Picture Installations
5.14 Rayleigh Disks. Radiometers
5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)
5.16 Sound Recording and Reproducing. General
5.16d Disk Recording (including cutting and embossing)
5.16f Film Recording (by photographic means)
5.16m Magnetic Recording
5.17 Telephones, Telephone Earphones, Intercommunication Systems. (See also 5.13.)
5.18 Transducing Principles, Structures, and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)
5.18m Magnetic Transducers; Magnetostriction
5.18p Piezoelectric Transducer, Ferroelectrics
5.19 Tuning Forks
5.20 Tone and Wave Synthesizers
5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i, 12.3p, and 12.3v.)

6. Musical Instruments and Music

6.1 General, Unclassified
6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators
6.3 Brass Wind Instruments (lip vibrated)
6.4 Drums and Other Membranophonic Instruments
6.5 Pipe Organs
6.6 Pianos and Other Keyboard Stringed Instruments
6.7 Violin Family. Stringed Instruments Except Keyboard Type
6.8 Wood Winds
6.9 Electrical Musical Instruments
6.10 Reed Organs. Accordions, Harmonicas
6.11 Singing—Vibrato. (Changed from 9.9 beginning 1961.)

7. Noise

7.1 General, Unclassified
7.2 Annoyance
7.3 Audiograms of Noise
7.4 City Noise
7.5 Frequency Analyses of Noise
7.6 Noise in Buildings. (See also 2.2.)
7.7 Machinery Noise. Mufflers. Noise Silencers
7.8 Noise Generators, Sirens
7.9 Noise of Animals, Biological Noise. (See also 13.9.)
7.10 Aerodynamic Noise, Jet Noise

8. Standards

8.1 General, Unclassified

9. Speech Communication. (Revised 1961.)

9.1 General, Unclassified
9.2 Properties of the Vocal Mechanism
9.3 Acoustic Analysis of Speech
9.4 Speech Synthesis
9.5 Perception of Speech and Speechlike Sounds
9.6 Measures of Speech Intelligibility. Quality Information Content
9.7 Phonetics, Linguistics, Statistics of Language
9.8 Systems for Speech Transmission, Analysis-Synthesis Telephony, Speech Coding
9.9 Instruments for Speech Measurement. (Former 9.9 classification "Singing" changed to 6.11 beginning 1961.)
9.10 Machine Recognition of Speech

10. Ultrasonics (Supersonics)

10.1 General, Unclassified
10.2 Light Affected by Ultrasonic Waves
10.3 Ultrasonic Instruments. (See also 5.18.)
10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption. (See also 11.3.)
10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption. (See also 13.2 and 13.3.)
10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption
10.7 Physical Effects of Ultrasonic Waves. (See also 10.2.)
10.8 Chemical Effects of Ultrasonic Waves
10.9 Biological Effects of Ultrasonic Waves

11. Waves and Vibrations. (See also 13.)

11.1 General, Unclassified
11.1.5 Analogies
11.2 Diffraction. Interference. Scattering. Reflection. Echoes, Standing Waves
11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames. (See also 5.14 and 10.7.)
11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

11.4 Radiation from Vibrating Objects. Acoustic Impedance. (See also 5.3, 12.3Z, and 13.7.)
11.5 Sounds of Finite Amplitude. Distortion. (See also 12.3 and 13.10.)
11.6 Noise in Tubes, Helmholtz Resonators
11.6.1 Sources of Sound. (See also 7.8 and 11.4.)
11.7 Theory of Waves. (See also 5.4, 11.1.5, and 12.7.)
11.8 Biological Effects of Sound. (See also 10.9 and 12.9.)
11.9 Physical Effects of Sound. (See also 10.7, 10.8, 11.2.1, and 12.10.)

12. Mechanical Vibration and Shock. (See also 5. and 11.)
12.1 General, Unclassified
12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, and 5.21.)
12.3f Mechanical Filters. (See also 5.4.)
12.3i Vibration Isolators, Attenuators and Dampers. (See also 2.11 and 5.21.)
12.3p Vibration Pickups and Indicators, Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)
12.3v Vibration Generators. Shake Tables. (See also 5.21.)
12.3Z Mechanical Impedance Measurement. (See also 5.3 and 11.4.)
12.5 Shock. (See also 11.5 and 13.10.)
12.7 Vibration. Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)
12.9 Biological Effects of Vibration and Shock. (See also 10.9 and 11.8.)
12.10 Seismology Seismographs. Geophysical Prospecting. (Started 1960.)

13. Underwater Sound
13.1 General, Unclassified
13.2 Propagation of Sound in Water. Attenuation. Fluctuation
13.3 Velocity of Sound in Water. Refraction. Doppler Effect
13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
13.5 Interference. Diffraction
13.6 Scattering. Reverberation in Water
13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance. (See also 5.3, 11.4, and 12.3Z.)
13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, Cavitation, or Splashes
13.9 Noise in Water. Ship Noise. Biological Noises
13.10 Sounds of Finite Amplitude in Water Explosions. Distortion. Cavitation. (See also 11.5 and 12.5.)
13.11 Instruments Relating to Underwater Sound. General
13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar
13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

Author Index to Volume 34

Numerals in boldface type refer to volume numbers. (A) designates Abstract; (L) designates Letter to the Editor; (T) designates Title only. A separate Inventor Index to Acoustical Patents appears at the end of the regular Author Index.

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Akust. Zhur., Publication. *II. Akustische Konferenz. VI. 19–23. Budapest, 1961.* **34**: 253(T)—1962
Allman, R. (see Campbell, J. R.). **34**: 1998(A)—1962
Alvarez, Charles. *Using the Slide Rule in Electronic Technology.* **34**: 1285(T)—1962
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Barnett, Norman E. Efficacy of damping submerged cylindrical shells. **34**: 1998(A)—1962
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Bogdanoff, John L. Influence on the behavior of a linear dynamical system of some imposed rapid motions of small amplitude. **34**: 1055; erratum 1957(L)—1962
—— **and F. Kozin.** Moments of the output of linear random systems. **34**: 1063—1962
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Bridgman, P. W. *Thermodynamics of Electrical Phenomena in Metals.* **34**: 1285(T)—1962
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—— (see Pigott, M. T.). **34**: 319—1962
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Burnett, Edwin D. Technique for varying the ratio of harmonic and intermodulation distortion in speech-communication tests. **34**: 1997(A)—1962

Butler, Robert A. and Ralph F. Naunton. Influence of monaural masking on the localization of sound in space. **34**: 727(A)—1962

—— **and R. F. Naunton.** Some effects of unilateral auditory masking upon the localization of sound in space. **34**: 1100—1962

—— (see Fernández, C.). **34**: 1411—1962

Butler, Robert H. and William J. Gruner. Application of model-scaling techniques to aircraft-noise-reduction problems. **34**: 1994(A)—1962

Butler, Thomas G. Approximate power spectral density of the response of a nonlinear system to stationary random excitation. **34**: 2001(A)—1962

Caddy, R. S. and H. F. Pollard. Determination of the energy reflection, absorption, and transmission coefficients of acoustical materials. **34**: 1138(L)—1962

Campanella, S. J., D. C. Coulter, and D. M. Early. Hybrid formant-tracking channel vocoder. **34**: 1996(A)—1962

Campbell, J. R. and R. Allman. Sound-measuring set. **34**: 1998(A)—1962

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—— **and Michael Cole.** Comparison of the receiver-operating characteristics for messages received by ear and by eye. **34**: 172—1962

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—— Equivalent linearization techniques. **34**: 2001(A)—1962

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——, **W. R. Farrell, P. W. Hirtle, and B. G. Watters.** Speech privacy in buildings. **34**: 475—1962

Cerceo, M., R. Meister, and T. Litovitz. Ultrasonic absorption in toluene in the kilocycle region. **34**: 259—1962

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Borell, James J. 2,971,421. Musical instrument. **34**: 1035—1962
Borthayre, Jean Leon Albert. 3,042,412. Phonographic record-player tone-arms. **34**: 1966—1962
Bose, Amar G. 3,038,964. Loudspeaker system. **34**: 1671—1962
Bostwick, Lee G. and Robert L. Guncelle. 2,877,319. Electromechanical vibrator. **34**: 1966—1962
Bourne, Roland B. and John Paul Tyskewicz. 2,994,401. Acoustic panel. **34**: 1306—1962
Brandizzi, Manlio. 3,042,410. Record stack height compensating mechanism for the needle of tone arm of automatic record changers. **34**: 1812—1962
Brasseur, Eudore. 2,964,324. Sound recording and reproducing apparatus. **34**: 875—1962
Brede, Dwight W. 3,005,582. Tape recording and reproducing apparatus and drive system therefor. **34**: 534—1962
Brenner, Bernard M. and William Barnhart. 3,012,106. Wide band data recording and reproducing system and method. **34**: 876—1962
Brettell, George A. (see Spragins, John D., Jr.). **34**: 1670—1962
Briggs, Peter George. 3,007,011. Magnetic transducing heads. **34**: 535—1962
Brilhart, Arnold R. 2,919,617. Reeds for woodwind instruments. **34**: 378—1962
—— 2,990,744. Musical wind instrument. **34**: 1673—1962
Brimhall, Rulon W. 3,011,380. Chord playing attachment for stringed musical instruments. **34**: 877—1962
Brisley, Frank O. and Ulysses T. Gambill. 2,984,312. Acoustical wall board. **34**: 871—1962
Brokaw, Adrian P. 3,019,413. Discriminating interval time computer for acoustic well logging systems. **34**: 1816—1962
Brooks, Harvey. 3,024,755. Torpedo echo steering system. **34**: 1677—1962
Broomell, George Lupton, Jr. (see Gardiner, Paul C.). **34**: 1318—1962
Brown, George S., Jr. (see Vanderzee, Harry Herbert). **34**: 154—1962
Brown, Jack W. 3,018,110. Speed shift control for phonographs. **34**: 711—1962
Brown, Richard K. 3,009,104. Underwater sound velocity meter. **34**: 711—1962
Brubaker, Wilson M. 2,963,555. Speed controls for reproduction of tape recordings. **34**: 1309—1962
Brumbaugh, Robert M. and Walter J. Cheney. 3,002,671. Magnetic tape apparatus. **34**: 534—1962
Bruninghaus, Paul. 3,039,012. Vibrating head. **34**: 1968—1962
Bruno, Russell J. 3,000,465. Muffler. **34**: 1036—1962
Buehler, John H. (see Peters, Edward L.). **34**: 382—1962
Bulat, Thomas J. 2,920,988. Process for ultrasonic quenching of steel particles. **34**: 381—1962
Bumstead, Ralph W. (see Bumstead, Robert). **34**: 1309—1962
Bumstead, Robert and Ralph W. Bumstead. 2,965,720. Tape recorder monitoring system and start-stop device therefor. **34**: 1309—1962
Burdick, Robert R. and Duane E. Punkar. 3,006,651. Mounting means for phonograph tone arms. **34**: 707—1962
Burgess, Warren C., Jr. 2,985,279. High energy level unidirectional vibratory drive system. **34**: 160—1962
Burns, Kay N. 3,012,234. Noise reduction in pulse-width modulated recording. **34**: 1815—1962
Campbell, Richard H., Jr. (see Hadden, George H.). **34**: 1675—1962
Camras, Marvin. 3,013,123. Electromagnetic playback system. **34**: 877—1962
Canfield, Herbert H. (see Meinema, Herbert E.). **34**: 878—1962
Carlsson, Stig. 3,037,081. Vented enclosure type loudspeaker system providing improved low-frequency response. **34**: 1671—1962
Carnvale, Anthony (see Atanasoff, John V.). **34**: 376—1962
Carroll, Aubrey G. 3,021,142. Gramophone pickup mechanism. **34**: 1030—1962
Carter, Kenneth G. 2,961,058. Muffler. **34**: 543—1962
Casey, John Lyle (see Engle, Allen Wendell). **34**: 880—1962
Castedello, William and Werner K. Bender. 3,001,444. Sound projector for projecting still transparencies on film and reproducing sound from a sound record area. **34**: 377—1962
Cefaly, Ralph. 3,020,971. Acoustic stethoscope. **34**: 1307—1962
Chade, Nelson. 3,047,296. Device for altering phonograph speed. **34**: 1967—1962
Chapanis, Alphonse (see Feagin, Frank J.). **34**: 1317—1962
Chapin, Charles J. (see Cvetko, Henry J.). **34**: 710—1962
Cheney, Walter J. (see Brumbaugh, Robert M.). **34**: 534—1962
Chernosky, Allen A. (see Feagin, Frank J.). **34**: 1317—1962
Chimento, Charles. 2,958,506. Turbine muffler. **34**: 543—1962
Christensen, Raymond T. 3,004,113. Hearing aids. **34**: 530—1962
—— **and Leonard E. Wojcik.** 3,013,127. Sound-transducing apparatus. **34**: 1031—1962
Chun, Melvin E. 2,982,941. Directional sound apparatus. **34**: 881—1962
Chute, Richard L. 3,027,794. Musical device. **34**: 1312—1962
Claesson, Per H. E. (see Vigren, Sten D.). **34**: 536—1962
Clark, Harold V. and Elwin MacRae. 3,031,535. Recording and reproducing system and method. **34**: 1312—1962
Clemens, Cal P. 3,029,553. Noisemaking attachment for a bicycle. **34**: 1676—1962
Clements, Warner W. 3,014,096. Sound reproducing means. **34**: 707—1962
Clynch, Frank. 3,024,861. System for anchoring and transporting a seismic vibrator. **34**: 1817—1962
Cocker, John, III. 2,968,359. Muffler construction. **34**: 1035—1962
Cocklin, Clinton T. 3,009,530. Exhaust device. **34**: 1037—1962
Cohn, David. 3,032,920. Sound producing devices for dolls, and doll bodies provided with sound producing devices. **34**: 1669—1962
Collier, Donald W., William G. Whitney, and Neal T. Williams. 2,994,746. Automatic recording machine. **34**: 157—1962
Collins, Marion C. 3,000,463. Detachable ear plugs for stethoscopes. **34**: 531—1962
Combs, Frayne L. 3,013,462. Chord selectors for chord organs. **34**: 878—1962
Conly, Ralph A. 2,981,805. Magnetic tape apparatus. **34**: 1310—1962
Cook, Edward G. 2,921,465. Acoustic translating device. **34**: 381—1962
Cook, Emory G. 3,023,459. Method of manufacturing phonograph records. **34**: 1157—1962
Cooke, David A. 2,996,027. Acoustic depth torpedo. **34**: 162—1962

Copland, George V. (see Smith, Edward W.). **34**: 880—1962
Corbett, Michael J., Jr., Fred H. Osborne, and Robert S. Tuttle. 3,008,721. Automatic photograph. **34**: 708—1962
Corwin, Merton D. 3,011,379. Electronic musical instrument with photoelectric switching. **34**: 1675—1962
Courtney-Pratt, Jeofry S. 3,015,959. Accelerometers. **34**: 1969—1962
Cox, William H. Method and apparatus for reproduction and display of seismic records. **34**: 1316—1962
—— (see Pierce, Russell, Jr.). **34**: 879—1962
Crawford, John M. 3,019,412. Floating support for seismic transducers. **34**: 1816—1962
—— **and William E. N. Doty.** 2,981,928. Method for eliminating undesired components of composite received signals. **34**: 879—1962
Crownover, Joseph W. 3,035,126. Transducer. **34**: 1811—1962
Cullin, Hugh J. (see Dranetz, Abraham I.). **34**: 536—1962
Curriston, Loren E. and Albert de Boer. 2,982,510. Shock and vibration isolator. **34**: 256—1962
Cutler, Stanley and Byron Roy Hunt. 2,962,922. Chord organ. **34**: 541—1962
—— **and Walter E. Sanders.** 2,963,564. Keyboard switch. **34**: 541—1962
Cvetko, Henry J. and Charles J. Chapin. 3,017,467. Method of assembly of phonograph pickup cartridges. **34**: 710—1962

da Costa, Floriano Peixoto. 3,034,391. Housing and sounding board for a stringed musical instrument. **34**: 1674—1962
Da Costa, Harry. 3,012,788. Phonograph record changers. **34**: 709—1962
Dail, Paul D. 2,994,113. Ceiling construction. **34**: 1306—1962
Dale, Colin B. 3,023,009. Phonograph. **34**: 1031—1962
Dally, Roy and George W. Fabel. 3,047,676. Channel and replaceable stylus assemblies. **34**: 1967—1962
Dane, Bruce W. 2,896,492. Beater for drums. **34**: 1969—1962
Darou, William T., Jr., William J. Gorman, and James F. Metcalf. 2,961,494. Magnetic head assemblies. **34**: 157—1962
Davidson, James J. 3,029,317. Frequency selective negative feedback recording circuitry. **34**: 1311—1962
Davies, Thomas L. 3,007,703. Magnetic tape sound recording and reproducing apparatus. **34**: 876—1962
Davis, Alfred. 3,032,744. Electronic computer for sound ranging system. **34**: 1671—1962
Davis, Kingsbury H. and Andrew C. Norwine. 3,024,321. Continuous recording system with indexing means. **34**: 1031—1962
Davis, Lewis. 3,019,685. Musical drums. **34**: 1032—1962
de Boer, Albert (see Curriston, Loren E.). **34**: 256—1962
De Lukawiecki, Eugene A. 3,003,390. Method of reproducing bilingual sound motion picture film. **34**: 377—1962
Demaree, John E. and William MacPherson. 3,011,792. Phonograph. **34**: 873—1962
Dennis, James R. 3,000,638. Record recording and playing device. **34**: 531—1962
Deremer, Floyd E. 2,958,389. Silencer or muffler. **34**: 543—1962
Dereux, Jean A. 2,959,083. Electrical musical instruments. **34**: 541—1962
De Roy, Ross F. 2,973,484. Frequency division system for electronic organ or the like. **34**: 1034—1962
Devol, Lee. 2,983,900. New sono optical viewing system. **34**: 161—1962
de Vries, Machiel. 2,997,548. Pickup. **34**: 156—1962
—— 3,022,384. Piezoelectric pickup. **34**: 874—1962
—— 3,028,162. Apparatus for transmitting mechanical vibrations. **34**: 1672—1962
Diamond, Herbert B. 3,028,760. Centrifugally restrained accelerometer. **34**: 1315—1962
Dickinson, Wesley E. 2,961,645. Magnetic transducer. **34**: 875—1962
Di Sabatino, Roland. 3,046,022. Automatic phonograph record player. **34**: 1967—1962
Di Toro, Michael J. 3,013,212. Aural detection apparatus comprising an acoustical delay line having external feedback circuit. **34**: 872—1962
Dobbins, Mark. 2,944,622. Sound absorbing structure. **34**: 152—1962
Dolby, Ray M. (see Ginsburg, Charles P.). **34**: 875—1962
Dolliver, David M. 3,020,712. Reversible-thrust sound suppression jet nozzles with movable ejector rings. **34**: 1038—1962
Dorf, Richard H. 3,022,696. Electrical musical instruments. **34**: 1159—1962
Doty, William E. N. (see Crawford, John M.). **34**: 879—1962
Dowdell, Thomas de W. and C. Walton Musser. 3,031,968. Piezoelectric fuze. **34**: 1812—1962
Dranetz, Abraham I. and Hugh J. Cullin. 2,967,956. Transducer. **34**: 536—1962
Drukey, Donald L. 2,968,798. Magnetic transducing method and system. **34**: 534—1962
Dubský, Borivoj and Oldřich Straka. 3,039,044. Electromagnetic device for measuring pressure. **34**: 1968—1962
Ducimetiere, René (see Iapella, Arnaldo). **34**: 1037—1962
Duffy, Frank E. and Joseph Thomas Haczek. 3,001,435. Music transposition and chord construction device. **34**: 378—1962
Dugas, Rebert J. 3,016,972. Muffler for an internal combustion engine. **34**: 1037—1962
Durant, Lyndon A. 3,028,160. Automatic rejector for phonograph. **34**: 1307—1962
—— 3,028,580. Record player and selecting system therefor. **34**: 1672—1962
DuVall, Wilbur E. 3,007,002. Audiometer. **34**: 530—1962.
Dyson, Eugene K. 2,987,291. Shock mount device. **34**: 256—1962

Eash, Edwin R. 2,988,948. Musical instrument valve construction. **34**: 1313—1962
Eash, George H. 3,009,024. Magnetic recorder. **34**: 535—1962
Eckel, Oliver C. 2,980,198. Assembly of sound absorbing members. **34**: 871—1962
Eklöv, David. 3,027,428. Telephone apparatus. **34**: 1672—1962
—— 3,027,429. Loudspeaking telephone instrument. **34**: 1672—1962
Elder, George W. 3,023,612. Hydraulic seismometer. **34**: 1813—1962
Eley, James C. (see Musgrave, Albert W.). **34**: 160—1962
Elliott, Sam D. (see Allyn, Robert M.). **34**: 1317—1962
Ellsworth, Allan R. (see Adams, Robert W.). **34**: 873—1962
Emary, Robert J. 3,021,111. Undercarriage for a sound suppressor. **34**: 1038—1962
Emenaker, Leo J. and Mark M. Siera. 3,000,078. Method of making magnetic transducer heads. **34**: 534—1962
Engle, Allen Wendell and John Lyle Casey. 2,994,398. Acoustic insulator for acoustic well logging tools. **34**: 880—1962
Enikeieff, Oleg C. 2,921,141. Communication and paging system. **34**: 378—1962
—— 2,988,598. Microphone jamming system. **34**: 376—1962

Erath, Louis W. and Louis B. McManis. 3,007,010. Compensation for distortion in magnetic recording. **34**: 535—1962
Erickson, Roger E. (see Holt, Norman H.). **34**: 153—1962
Erwin, James V. Re 24,733. Drum head and like assemblies. **34**: 255—1962
Erwood, Joseph. 3,007,704. Phonographic record changers. **34**: 708—1962
Esser, George W. 3,021,394. Record-reproduce system. **34**: 874—1962
Evans, William T. (see Winterhalter, Alfred C.). **34**: 1315—1962
Everett, Wilhelm S. 2,990,907. Acoustic filter. **34**: 1036—1962
—— 2,998,860. Sound silencing and filtering apparatus. **34**: 1036—1962
Ewashuk, Harry. 3,003,578. Mufflers. **34**: 1036—1962

Fabel, George W. (see Dally, Roy). **34**: 1967—1962
Facey, Stanley R. and Percy W. P. Hancock. 2,947,210. Piano. **34**: 538—1962
Faulkner, Willard J. and Jack E. Bayha. 3,046,020. Control mechanism for phonographs. **34**: 1967—1962
Fauser, Richard F. 3,026,760. Musical instrument key action. **34**: 1313—1962
Fay, James P. 2,968,701. Transverse recording device using a tubular tape medium. **34**: 875—1962
—— **and James K. Pickard.** 3,029,318. Head adjusting means for signal recording or reproducing apparatus. **34**: 1312—1962
Feagin, Frank J. and Allen A. Chernosky. 3,011,583. Signal delaying system. **34**: 1317—1962
——, **William M. Rust, Jr., and Alphonse Chapanis.** 3,014,551. Correlation of seismic signals. **34**: 1317—1962
Feinstein, Jack. 3,019,024. Phonograph test method. **34**: 874—1962
Fender, Clarence L. 2,968,204. Electromagnetic pickup for lute-type musical instrument. **34**: 539—1962
—— 2,973,681. Apparatus for producing tremolo effects. **34**: 1034—1962
—— 3,003,382. Electric violin, and electromagnetic pickup therefor. **34**: 380—1962
Ferrell, Donald. 3,000,344. Power horn. **34**: 374—1962
Fiala, Walter. 3,014,099. Electroacoustic transducer. **34**: 707—1962
Fine, C. Robert. 3,029,316. Apparatus for production of sound recordings. **34**: 1156—1962
Fine, Clarence Robert. 3,005,058. Apparatus for use in producing sound motion picture film. **34**: 254—1962
Finvold, Rodger C. 2,916,016. Electromechanical transducer. **34**: 382—1962
Flanagan, James L. 2,938,079. Spectrum segmentation system for the automatic extraction of formant frequencies from human speech. **34**: 544—1962
Fleming, Ronald F. 3,031,530. Sound translating apparatus. **34**: 1312—1962
Foelkel, Wilhelm and Friedel Horstmann. 3,009,705. Mechanism for the preselection of gramophone records. **34**: 709—1962
Fogel, Lawrence J. 2,920,138. System for improving intelligibility. **34**: 380—1962
—— 2,966,549. Apparatus for improving intelligence under high ambient noise levels. **34**: 544—1962
Fomenko, S. M. 2,950,353. Pliant disk magnetic recording apparatus. **34**: 1308—1962
Foster, Joseph and Richard Henry Mallard. 3,034,793. Sound reproducing machines. **34**: 1811—1962
Fotland, Richard A. 2,919,574. Ultrasonic inspection device. **34**: 381—1962
Fredriksson, Oke A. (see Klein, Walter W., Jr.). **34**: 1316—1962
Freeman, Quilla H. 3,035,472. Stringed musical instrument. **34**: 1674—1962
Frei, Ephraim H. (see Gamzon, Robert R.). **34**: 711—1962
Freise, August. 3,013,126. Transducer head for dual sound track recording. **34**: 709—1962
—— (see Batsch, Helmut). **34**: 532—1962
Friend, Albert W. 2,975,853. Sound absorbent translucent building block. **34**: 870—1962
Frink, Claude E. 3,042,413. Recorded adapter for phonograph records. **34**: 1966—1962
Fritze, Ulrich, Rudolf Müller, and Hans-Willi Paffrath. 2,981,360. Sound-absorbing systems. **34**: 871—1962
—— (see Müller, Rudolf). **34**: 152—1962
Fry, Frank J. (see Fry, William J.). **34**: 1676—1962
Fry, William J. and Frank J. Fry. 3,024,644. Ultrasonic microscope. **34**: 1676—1962
Furon, Leon D. (see Mitchell, Hugh A.). **34**: 1813—1962

Gales, Robert S. and Irving Rehman. 3,014,550. Noise exposure meter. **34**: 531—1962
Galke, Ralph W. and Richard A. Hathaway. 3,038,728. Record changer mechanism. **34**: 1811—1962
Gallina, Harold. 2,947,820. Signal transfer and guide fixture for magnetic information medium. **34**: 1308—1962
Gambill, Ulysses T. 2,984,313. Fibrous glass panel. **34**: 871—1962
—— (see Brisley, Frank O.). **34**: 871—1962
Gamzon, Robert R. and Ephraim H. Frei. 3,013,905. Electroacoustic transducers. **34**: 711—1962
Ganine, Peter. 2,838,834. Method of making a musical comb. **34**: 255—1962
Gardiner, Paul Cooke. 3,024,754. Phase-difference control for electro-acoustic steering systems. **34**: 1677—1962
——, **Lawrence E. Jewett, and George Lupton Broomell, Jr.** 3,022,760. Echo range limitation equipment. **34**: 1318—1962
Gaubert, Rene J. 3,001,025. Magnetic tape apparatus. **34**: 158—1962
Genning, Ernst. 2,971,063. Switching arrangement for eliminating noise in a tape recording and reproducing system. **34**: 1310—1962
George, Thomas J. 2,949,804. Electronic musical instrument. **34**: 540—1962
—— 2,953,958. Electronic musical instrument control system. **34**: 541—1962
Gercken, Clarence J. 2,966,089. Chimes. **34**: 542—1962
Gerlich, Stephen. 3,018,841. Muffler. **34**: 1037—1962
Gildard, James H. (see Lemmerman, Richard D.). **34**: 1037—1962
Gilman, Warren C. 3,027,430. Electronic cue inserter. **34**: 1156—1962
Ginsburg, Charles P., Shelby F. Henderson, Jr., Ray M. Dolby, and Charles E. Anderson. 3,003,025. Video recorder tape and head speed control system. **34**: 875—1962
Gladstone, Lewis. 3,026,957. Loudspeaker system. **34**: 1670—1962
Glick, Arthur D. (see Aske, Vernon H.). **34**: 1970—1962
Godbey, Josiah J. 2,928,308. Means for controlling the frequency of a tuning fork. **34**: 1969—1962
Goddard, Robert W. 2,976,378. Acceleration responsive devices. **34**: 879—1962
Goebel, Kenneth W. and Lanvin G. Pierce. 2,968,150. Jet engine exhaust sound suppressor and thrust reverser. **34**: 1035—1962
Goldman, Robert B. (see Bobb, Lloyd J.). **34**: 1030—1962
Goldmark, Peter C., Benjamin B. Bauer, and John M. Hollywood. 3,013,125. Stereophonic recording. **34**: 709—1962

Gongoll, Vernon F. 3,030,458. Detachable liner for headsets. **34**: 1668—1962
Gordon, Glenn A. 3,003,280. Noise-making toy. **34**: 374—1962
Görike, Rudolf. 2,971,597. Electroacoustic devices. **34**: 376—1962
Gorman, William J. (see Darou, William T., Jr.). **34**: 157—1962
Goupillaud, Pierre L. (see Berryman, Langdon H.). **34**: 1316—1962
Grado, Joseph F. 3,018,336. Phonograph transducer. **34**: 711—1962
—— 3,040,136. Electromechanical transducer. **34**: 1812—1962
Graham, Richard H. 2,978,673. Seismic surveying method and system. **34**: 256—1962
Grannemann, Wayne W. 2,987,701. Methods and apparatus for eliminating singing components from seismic signals. **34**: 879—1962
—— **and George A. W. Trorey.** 2,979,692. Elimination of multiple frequency components in seismic records. **34**: 256—1962
Gratian, Joseph W. and Richard J. O'Brien. 3,001,026. Half/full track magnetic recording. **34**: 158—1962
Green, Robert F. 2,995,198. Acoustical panel. **34**: 1306—1962
Greenleaf, Leland B. 3,030,846. Musical instrument valve mechanism. **34**: 1674—1962
Greenspan, Martin and Raymond M. Wilmotte. 2,921,134. Electrical-sonic transducers. **34**: 381—1962
Greff, Richard M. 2,958,387. Silencer for compressible fluid devices. **34**: 543—1962
Greiner, John R. 2,939,627. Blower mounting construction. **34**: 160—1962
Gress, George E. (see Miles, Roger H.). **34**: 1313—1962
Groux, Georges. 3,013,460. Tuned musical comb. **34**: 877—1962
Guest, Lawrence Vincent. 3,000,637. Record supporting and releasing spindle for automatic talking machines. **34**: 378—1962
Gunby, Olin Brittingham. 3,002,055. Single film rerecording system. **34**: 156—1962
Guncelle, Robert L. (see Bostwick, Lee G.). **34**: 1966—1962
Guskie, Stanley, Clarence J. Holpuch, and Meyer Marks. 3,033,930. Control circuit. **34**: 1669—1962

Haczek, Joseph Thomas (see Duffy, Frank E.). **34**: 378—1962
Hadden, George H. and Richard H. Campbell, Jr. 3,006,229. Electronic organ. **34**: 1675—1962
Haerther, William W., Jr. 3,026,958. Acoustical diaphragm. **34**: 1670—1962
—— 3,032,138. Acoustical devices. **34**: 1671—1962
Hagemann, Julius. 3,012,222. System for displaying sonic echoes from underwater targets. **34**: 881—1962
Hall, Harry H. 3,016,829. Acoustical mine firing control system. **34**: 881—1962
Ham, James H., Jr., and Walter Kalin. 2,878,464. Sound output controller for signaling devices. **34**: 1965—1962
Hammes, Josef Johann. 3,023,830. Combination loudspeaker mounting and lamp. **34**: 1669—1962
Hammond, Joseph W. 3,018,838. Method of seismic prospecting. **34**: 1816—1962
Hammond, Laurens. 2,949,805. Artificial reverberation control apparatus. **34**: 379—1962
Hamson, Roger E. 3,032,615. Acoustic devices. **34**: 1671—1962
Hancock, Percy W. P. (see Facey, Stanley R.). **34**: 538—1962
Hanert, John M. 2,937,556. Electrical musical instruments. **34**: 539—1962
—— 2,951,412. Electrical musical instrument with percussion apparatus. **34**: 540—1962
—— 2,953,055. Percussion tone electrical musical instrument. **34**: 380—1962
—— 2,953,056. Percussion tone electrical musical instrument. **34**: 380—1962
—— 2,967,447. Apparatus for translating electrical musical tone signals into sound. **34**: 1033—1962
—— 2,972,273. Polyphonic percussion control apparatus. **34**: 1033—1962
Hanlet, Jacques M. N. 3,012,107. Sound powered telephones. **34**: 536—1962
Hansen, Hans Christian. 2,988,366. Sound reproducing systems. **34**: 155—1962
—— 3,005,636. Record feeding arrangement by the tone arm. **34**: 533—1962
—— 3,010,724. Phonograph trigger mechanisms. **34**: 709—1962
—— 3,017,188. Automatic phonographs. **34**: 873—1962
—— 3,038,727. Record feeding arrangements. **34**: 1811—1962
—— 3,044,782. Spindle with feeder position record changing phonographs. **34**: 1812—1962
Hardesty, Frederick L. 2,915,587. Portable power megaphone apparatus. **34**: 377—1962
Hardway, Richard V., Jr. 3,035,450. Acceleration responsive devices. **34**: 1814—1962
Hardy, Maurice E. and Werner H. Puls. 3,030,115. Tone arm positioning assembly. **34**: 1157—1962
Hare, Donald G. C. 2,991,562. Training aid system for wave detection equipment. **34**: 161—1962
Harnish, Joachim and Hans Hermann. 3,021,144. Record changing mechanism. **34**: 874—1962
Harris, Wilbur T. 3,018,465. Compliant acoustic radiating means. **34**: 1160—1962
—— 3,018,466. Compensated hydrophone. **34**: 1160—1962
—— 3,018,467. Resonant reactively operating variable position transducer. **34**: 1158—1962
—— 3,022,487. Electromagnetic transducer. **34**: 1318—1962
—— 3,027,541. Structure for use in an electrodynamic transducer. **34**: 1678—1962
Hart, Harold A. 3,004,103. Noise-reducing microphone assembly. **34**: 376—1962
Hartenstein, Raymond G. (see Kerley, James J., Jr.). **34**: 879—1962
Hasbrook, Arthur F. 3,000,460. Sonic geophysical exploration. **34**: 880—1962
—— 3,000,461. Sonic geophysical exploration. **34**: 880—1962
—— 3,020,970. Apparatus for sonic geophysical exploration. **34**: 1816—1962
—— 3,022,851. Sonic impulse generators for use in geophysical exploration. **34**. 1817—1962
Haslett, Roy William George, Peter Roy Hopkin, and Norman Henry Benning. 3,019,411. Echo detection with delayed read out. **34**: 1160—1962
Hassan, Joseph A. 2,997,549. Loudspeaker construction. **34**: 375—1962
—— 2,998,496. Loudspeaker construction. **34**: 254—1962
Hasselbach, Wolfgang, Anton Bauer, and Hermann Scherer. 3,027,164. Phonograph. **34**: 1157—1962
Hathaway, Richard A. (see Galke, Ralph W.). **34**: 1811—1962
Haushalter, Fred L. 2,977,819. Vibration damper. **34**: 255—1962
Hawkins, James E. and Stanley W. Wilcox. 2,990,904. Method and apparatus for continuous geophysical exploration. **34**: 160—1962
Hayashi, Shizuo (see Miura, Yuzo). **34**: 155—1962
Heath, Robert B. (see Towell, Billy H.). **34**: 161—1962

Hegeman, Andrew Stewart, Jr. 3,032,136. Loudspeaker. **34**: 1670—1962
Helm, Charles W., Jr., and Frank L. Moore. 3,024,322. Sound translating apparatus. **34**: 1030—1962
Henderson, Shelby F., Jr. (see Ginsburg, Charles P.). **34**: 875—1962
Henley, Edward J. 2,941,435. Electronic tone generator system. **34**: 379—1962
Henry, Elliott A. 3,036,231. High resolution piezoelectric transducers. **34: 1813—1962**
Hermann, Hans (see Harnish, Joachim). **34**: 874—1962
—— (see Zimmermann, Heinrich). **34**: 1030—1962
Hertel, Kenneth L. 2,950,784. Instrument damping devices. **34**: 545—1962
Herzfeld, Richard P. 3,023,308. Sound system for outdoor theaters. **34**: 1156—1962
Hester, Frank A. 3,043,921. Piezoelectric transducer for stereophonic phonograph pickup. **34**: 1812—1962
Heymann, Frank J. 2,984,453. Vibration damper for blading in elastic fluid apparatus. **34**: 256—1962
Heytow, Solomon and Richard H. Peterson. 2,953,054. Vibrato producing circuit for electronic musical instrument. **34**: 379—1962
Hibbard, Haines C. 3,014,651. Correlation of seismic records. **34**: 1815—1962
—— (see Skelton, Jesse D.). **34**: 1815—1962
Hicks, Emery A. 2,986,399. Record repeating attachment for phonograph. **34**: 154—1962
Hillard, John K. and Eric Mitchell. 3,026,374. Voice-control telephone conference system. **34**: 1312—1962
Hisserich, Charles A. and Donald G. Reed. 3,031,644. Acoustic detector. **34**: 1677—1962
Hoeller, Hermann. 3,006,240. Synchronizing device for a film projector and a sound tape apparatus. **34**: 531—1962
Hoffmann, Bruno. 3,015,490. Central record spindle for records having a large central aperture. **34**: 710—1962
Hoffmann, Richard R. 2,915,897. Automatic tracking spectrum analyzer. **34**: 374—1962
Hogencamp, Harold C. 3,038,966. Sound reproducing systems. **34**: 1671—1962
Hohnecker, Otto. 2,950,354. Magnetic head suspension. **34**: 1308—1962
Hohner, Walter. 3,015,980. Wind instrument. **34**: 711—1962
Hollabaugh, Max G., Fred D. Sher, and Kenneth R. Wisner. 2,965,721. Apparatus for magnetically recording video-frequency signals including ambient fluid bearing means. **34**: 1309—1962
Hollmann, Hans E. 3,035,449. Accelerometer. **34**: 1814—1962
Hollywood, John M. (see Goldmark, Peter C.). **34**: 709—1962
Holman, Wesley A. 2,963,690. Magnetic transducer. **34**: 875—1962
Holpuch, Clarence J. (see Guskie, Stanley). **34**: 1669—1962
Holt, Norman H. and Roger E. Erickson. 2,999,136. Spectacle hearing aid. **34**: 153—1962
Holt, William J. 2,838,698. Tuning fork assembly. **34**: 255—1962
Holtkamp, William E., Jr. (see Winterhalter, Alfred C.). **34**: 880—1962
Holzinger, Val. 2,945,409. Pipe organ. **34**: 538—1962
Hoodwin, Louis S. 3,016,430. Loudspeaker. **34**: 1029—1962
Hopkin, Peter Roy (see Haslett, Roy William George). **34**: 1160—1962
Horstmann, Friedel (see Foelkel, Wilhelm). **34**: 709—1962
Hoshino, Yasushi, Mamoru Namikawa, and Shigezo Tochihara. 2,965,723. Device for copying magnetic records. **34**: 1309—1962
——, **Mamoru Namikawa, and Shigezo Tochihara.** 3,023,010. Means for protecting a magnetic sound record sheet from stray magnetic field. **34**: 1311—1962
Hoskin, Richard K. 3,000,583. Apparatus for recording and for playback of sound utilizing a tape. **34**: 534—1962
Houde, Jean Marie. 3,000,253. Pitch-changing device for string instruments. **34**: 159—1962
Howatt, Glenn N. 3,021,441. Piezoelectric transducer. **34**: 1673—1962
—— 3,027,540. Hydrophone with spaced electromechanical ceramic elements. **34**: 1677—1962
Howes, Edgar T. 2,993,553. Well logging system. **34**: 160—1962
Huckabay, William B. 2,994,397. Method and system for continuous seismic surveying. **34**: 1970—1962
—— **and Carroll D. McClure.** 2,981,357. Submerged strata acoustic probe system. **34**: 257—1962
Hucke, Ewald William and Harmon G. Mitchell. 2,963,934. Piano action. **34**: 539—1962
Huebschmann, Eugene C. 3,016,752. Transistor type accelerometer. **34**: 1970—1962
Humby, Edward Thomas and Kenneth Charles Bone. 3,014,728. Automatic record-changers. **34**: 710—1962
Hunt, Byron Roy (see Cutler, Stanley). **34**: 541—1962
Hurvitz, Hyman. 3,011,378. Automatic electronic organ. **34**: 1675—1962

Iapella, Arnaldo, André Lécolle, and René Ducimetiere. 3,016,692. Combustion engine exhaust treatment. **34**: 1037—1962
Ilgenfritz, Lester M., Hilbert R. Moore, and Donald D. Robertson. 3,016,514. Apparatus for field testing signal guided bodies. **34**: 881—1962
Ippolito, Francis J. 2,893,283. Practice drum set. **34**: 1969—1962
Irving, Jack H. (see Beckner, Bernard E.). **34**: 1309—1962
Isaacson, Walter P. 3,018,839. Acoustic wave well logging system. **34**: 1816—1962
Itokawa, Hideo (see Yamamoto, Kinya). **34**: 538—1962
Itria, Oswald A. 3,003,577. Apparatus for seismic exploration. **34**: 1316—1962

Jack, William A. 2,967,583. Ventilating through fissured acoustical unit. **34**: 870—1962
Jacobsen, Irvin S. 2,895,048. Vibratory reed in electronic heading sensing device. **34**: 1968—1962
Jacobson, Jesse. 2,948,178. Electronic musical reed instruments. **34**: 540—1962
Jacque, James M. 3,000,639. Stylus securing means for phonograph pickup cartridges. **34**: 532—1962
—— 3,001,031. Self-supporting electromechanical transducer assembly. **34**: 532—1962
Jamieson, Robert S. 2,959,252. Damper for transducer. **34**: 54[illegible]—1962
Jensen, Clarence F. 3,002,759. Phonograph stylus and mounting therefor. **34**: 532—1962
—— 3,048,667. Cartridge for phonograph pickup. **34**: 1968—1962
Jewett, Lawrence E. (see Gardiner, Paul C.). **34**: 1318—1962
Johnson, Robert E. 2,968,863. Process of making pianc string. **34**: 1032—1962
Jones, Edward M. 2,986,963. Electropiano. **34**: 1034—1962
—— **and Wesley Love.** 3,023,657. Photoelectric musical instruments and the like. **34**: 1159—1962
Jones, R. Clark. 2,995,101. Steering apparatus for torpedoes. **34**: 257—1962
—— 2,995,102. Torpedo steering system. **34**: 257—1962
—— 2,996,029. Torpedo steering system. **34**: 258—1962
Jorner, Victor. 3,020,050. Spindle for automatic drop-type phonographs. **34**: 874—1962

Kabrick, Wallace J. and John K. Birch. 2,995,630. Programming apparatus. **34**: 154—1962
Kalin, Walter (see Ham, James H., Jr.). **34**: 1965—1962
Kallenberg, John and Roy R. Segerdahl. 3,029,645. Integrating accelerometer. **34**: 1814—1962
Kappel, Joseph R. 2,960,899. Electrical musical instrument. **34**: 541—1962
Karraker, William A. 3,016,783. Mechanical audio and visual signal coordinating device. **34**: 877—1962
Kastel, Isidor I. 3,011,024. Telephone set. **34**: 536—1962
Keister, James E. (see Maier, Leonard C., Jr.). **34**: 157—1962
Kendall, James M. 3,027,837. Sound responsive coded signal demolition device. **34**: 1677—1962
Kenney, Mahlon W. and Jacob C. Kiefer. 3,034,792. Automatic speed control mechanism for phonographs. **34**: 1811—1962
Kent, Earle L. 2,987,950. Wind instrument of the cup mouthpiece type. **34**: 1312—1962
—— **and David Albert LeFevre.** 3,022,697. Electroformed mouthpiece and mouthpiece receiver. **34**: 1158—1962
Kent, Larry and Thomas W. Norum. 2,971,424. Vibrating bar type musical instrument having strikers. **34**: 1032—1962
Kerley, James, J., Jr., Raymond G. Hartenstein, Robert M. Sando, and Milton F. Valenta. 2,972,459. Vibration and shock isolator. **34**: 879—1962
Kerr, Maxwell A. 3,017,466. Magnetic quarter-stripe sound tracks for 16-mm film. **34**: 873—1962
Kiefer, Jacob C. (see Kenney, Mahlon W.). **34**: 1811—1962
Kietz, Hans. 3,013,247. Transducer and pulse excitation circuit. **34**: 881—1962
—— **and Willy Kunze.** 3,017,606. Echo sounding system. **34**: 1038—1962
King, Blaine H. 3,034,001. Vibration detector. **34**: 1814—1962
King, John A. 3,019,849. Loudspeaker diaphragm suspension. **34**: 1029—1962
Kirsten, Gerhard H. and James F. Tesch. 3,027,758. Vibration measuring apparatus. **34**: 1315—1962
Klebba, Arthur A. (see Snow, Chester A., Jr.). **34**: 533—1962
Klein, Walter W., Jr., and Oke A. Fredriksson. 3,006,713. Seismic data display. **34**: 1316—1962
——, **and Aubra E. Tilley.** 2,976,107. Seismic section plotter. **34**: 256—1962
Kleiner, Rudolph R. and Jerome Zarcone. 3,026,759. Drum head auxiliary unit. **34**: 1313—1962
Kleis, Derk. 3,012,104. Method of recording and apparatus for recording signals. **34**: 876—1962
—— **and Roelof Vermeulen.** 3,015,701. Sound reproduction system. **34**: 707—1962
Kliever, Waldo H. and Wayne M. Ross. 2,995,725. High speed sonar scanning apparatus. **34**: 162—1962
Knauert, William F. 3,030,456. Bone-conduction all-in-one transistor amplifier hearing aid. **34**: 1307—1962
Knight, Cosler D. 2,999,909. Transducer apparatus. **34**: 254—1962
Knowles, Hugh S. 3,002,058. Electroacoustic transducer. **34**: 537—1962
Kobler, Richard. 3,038,037. Recording machine. **34**: 1811—1962
Koren, Heiman W. and Ignatius Michalko. 2,967,750. Magnetic record transducing heads. **34**: 533—1962
Kornei, Otto. 3,004,325. Method of making a magnetic head for recording reproducing. **34**: 534—1962
Krahulec, Fred and Michael R. Siuda. 2,994,537. Record changer. **34**: 155—1962
Kramer, Frank J., Jr. (see Bissonette, Alfred J.). **34**: 1313—1692
Kratt, William. 3,014,397. Toy musical instrument. **34**: 877—1962
Kretzmer, Ernest R. and Mark A. Townsend. 3,034,077. Ultrasonic delay lines. **34**: 1813—1962
Kristiansen, Svend Helge. 2,974,745. Sound-deadening air-intake devices. **34**: 1036—1962
Kristoff, Walter W., Jr. 3,030,454. Magnetostrictive phonograph pickup and system embodying the same. **34**: 1157—1962
Krtous, George F. 3,047,671. Sound motion picture projector. **34**: 1966—1962
Kuester, Donald W. 3,002,179. Low-frequency hydrophone. **34**: 546—1962
Kunz, Jacob T. 2,938,420. Pickups for electrical musical instrument. **34**: 379—1962
Kunze, Willy (see Kietz, Hans). **34**: 1038—1962
Küsters, Willy (see Schoeps, Karl). **34**: 375—1962

Laas, William E. 3,016,782. Device for deflecting the tone of a musical instrument. **34**: 1674—1962
Lalesse, Herman Cornelis. 3,026,382. Transducing device. **34**: 1031—1962
LaLonde, Fred J. 3,029,679. Drums. **34**: 1674—1962
Lang, Boris M. 2,977,836. Music instruction device. **34**: 1031—1962
Langendorf, Matthew P. 3,011,030. Voice actuated relay circuit. **34**: 536—1962
Lash, Charles C. 3,024,442. Recording and display of seismic data. **34**: 1817—1962
Lawrence, Joseph L. (see Puharich, Henry K.). **34**: 153—1962
Lécolle, André (see Iapella, Arnaldo). **34**: 1037—1962
LeFevre, David Albert (see Kent, Earle L.). **34**: 1158—1962
Leipert, Edward. 2,936,591. Vibration absorbing assembly for marine engines. **34**: 255—1962
Leistritz, Hans Karl. 2,955,671. Induction silencers for internal combustion engine carburetors. **34**: 542—1962
Lemelson, Jerome H. 2,959,636. Magnetic recording. **34**: 1309—1962
—— 3,029,555. Noisemaking toys. **34**: 1668—1962
Lemmerman, Carl W. 2,965,190. Jet engine muffler. **34**: 1035—1962
Lemmerman, Richard D. 2,918,984. Sound control shroud for aircraft engines. **34**: 380—1962
—— 2,956,637. Sound attenuating device. **34**: 542—1962
—— **and James H. Gildard.** 3,011,584. Sound attenuating device. **34**: 1037—1962
Leonard, Robert W. (see Mathewson, Arthur A., Jr.). **34**: 879—1962
Leslie, Donald J. 2,949,803. Cross-wired organ system and rectifier therefor. **34**: 540—1962
—— 2,994,240. Vibrato-oscillator for electronic organs or the like. **34**: 1674—1962
Leslie, Edward S. 2,971,064. Automatic adjustable film support for magnetic recorder. **34**: 1310—1962
Lessing, Edward (see Sobel, Ilyitch J.). **34**: 707—1962
Lester, Burton R. (see Maier, Leonard C., Jr.). **34**: 157—1962
Levin, Simon. 2,942,928. Magnetostrictive storage apparatus. **34**: 1308—1962
Levison, Floyd S. 2,960,110. Noise dampener. **34**: 545—1962
Levy, Sidney E., Arthur Blumenfeld, and Barnard Sharp. 3,028,927. Dual coaxial speaker. **34**: 1670—1962
Lewis, George. Re. 25,059. Bone conduction receiver mounting for combined hearing aid and spectacle. **34**: 530—1962
Licklider, Joseph C. 2,958,729. Information signal intelligibility measuring apparatus. **34**: 380—1962
Licklider, Joseph C. R. 2,943,152. Audio pitch control. **34**: 544—1962

Lilley, Geoffrey Michael. 2,990,905. Jet noise suppression means. **34**: 1036—1962
Lindheim, Stephen W. (see Schwartz, Robert A. D.). **34**: 1306—1962
Lindley, Frederick A., Jr. 3,008,244. Sonar simulator. **34**: 712—1962
Loehr, John. 2,954,233. Endless magnetic record belt and sound track control means therefor. **34**: 874—1962
Loewe, Siegmund and Werner Zorn. 2,943,804. Magnetic sound recording device. **34**: 1308—1962
—— **and Werner Zorn.** 3,011,031. Arrangement of magnetic heads for tape recorders. **34**: 876—1962
Logan, William W. 3,014,991. Discriminatory control network for recording systems. **34**: 707—1962
Love, Wesley (see Jones, Edward M.). **34**: 1159—1962
Loving, Frank Abraham, Jr. 2,940,300. Sound reducing explosives testing facility. **34**: 159—1962
—— (see Andrews, Alday Bishop). **34**: 1316—1962
Lucas, James W. 3,022,698. Uniform piano keyboard. **34**: 1158—1962
Ludwig, William F. 3,021,743. Tuning mechanism for drums. **34**: 1032—1962
Lunsford, Clyne W. 3,031,195. Phonograph stylus and record cleaner for protective apparatus. **34**: 1157—1962
Lynch, Neal J. 3,034,245. Duck caller and decoy. **34**: 1669—1962
Lynott, John J. 2,969,435. Oil film spacer for magnetic recording device. **34**: 1310—1962
Lyon, William H. (see Balmer, Donald F.). **34**: 711—1962

MacDonald, Waldron S. 3,017,832. Echo firing device for a depth charge. **34**: 1038—1962
Machalek, Ferdinand and Ludmila Machalek. 2,958,249. String mounted key for electronic musical instrument. **34**: 541—1962
Machalek, Ludmila (see Machalek, Ferdinand). **34**: 541—1962
MacPherson, William (see Demaree, John E.). **34**: 873—1962
MacRae, Elwin (see Clark, Harold V.). **34**: 1312—1962
Magnus, Finn H. 2,987,949. Chord type reed organ. **34**: 1314—1962
Maier, Leonard C., Jr., James E. Keister, Burton R. Lester, and Benjamin G. Walker. 2,958,735. Video tape recording system. **34**: 157—1962
Malinaric, Paul J. 2,999,905. Noise eliminator. **34**: 377—1962
Maling, George C., Jr. (see Bobb, Lloyd J.). **34**: 1030—1962
Mallard, Richard Henry. 3,048,406. Sound reproducing machines. **34**: 1968—1962
—— (see Foster, Joseph). **34**: 1811—1962
Mallina, Rudolph F. 2,977,125. Repeating mechanism. **34**: 1030—1962
Malme, Charles I. 3,014,098. Transducer. **34**: 1029—1962
Mankovitz, David. 3,006,652. Phonograph tone arm construction. **34**: 708—1962
Manning, Walter Frederick. 3,013,802. Spindles for record changing gramophones and the like. **34**: 710—1962
Mariner, Thomas. 2,968,327. Method of improving the sound absorption efficiency of perforated porous acoustical materials. **34**: 870—1962
Markowitz, Jerome. 2,989,886. Electronic organ and the like having chiff and other tonal characteristic producing means. **34**: 1314—1962
—— 2,989,887. Electronic organ and the like having transient tonal characteristic producing means. **34**: 1314—1962
Marks, Meyer (see Guskie, Stanley). **34**: 1669—1962
Marsden, Ross S., Jr. (see Piety, Raymond G.). **34**: 257—1962
Mason, Lawrence J. (see Abma, John S.). **34**: 531—1962
Mason, Warren P. and Robert N. Thurston. 3,004,176. Electromechanical transducers. **34**: 537—1962
Massa, Frank. 2,967,957. Electroacoustic transducer. **34**: 537—1962
Mathewson, Arthur A., Jr., John P. Selberg, and Robert W. Leonard. 2,989,130. Isolator for sonic earth boring drill. **34**: 879—1962
Matusche, Heinz. 3,007,705. Driving devices for moving the sound head of dictating machines. **34**: 708—1962
—— 3,021,145. Sound recording and reproducing apparatus. **34**: 1030—1962
Maurer, John A. 3,001,030. Sound reproducer for reproducing sound from a sound track area on film. **34**: 156—1962
Mayes, Fred M. 3,005,183. Underwater transmitter. **34**: 712—1962
Mayr, Hans. 3,009,528. Electroacoustical device for reproducing low pitch notes. **34**: 707—1962
McCarrell, Stuart G. 3,019,305. Transducer mounting means. **34**: 872—1962
McClure, Carroll D. (see Huckabay, William B.). **34**: 257—1962
McConnell, John H. 3,043,920. Electromagnetic phonograph pickups. **34**: 1812—1962
McCreary, Harold J. 3,033,944. Magnetostrictive transducer. **34**: 1673—1962
McDonald, Eugene F., Jr. 2,920,604. Remote control device. **34**: 381—1962
McGehee, Bobby L. 2,959,917. Sound suppressor for jet engines. **34**: 543—1962
McGinley, Edward J. 2,984,142. Music chart. **34**: 1032—1962
—— 2,984,143. Music chord chart. **34**: 1032—1962
McKellip, Spencer W. 2,941,433. Key switching and octave coupling mechanism. **34**: 539—1962
McManis, Louis B. (see Erath, Louis W.). **34**: 535—1962
Mead, Theodore E. 3,009,531. Muffler. **34**: 1037—1962
Meinema, Herbert E. and Herbert H. Canfield. 2,982,819. Artificial reverberation apparatus. **34**: 878—1962
Metcalf, James F. (see Darou, William T., Jr.). **34**: 157—1962
Mettler, Hal C. 3,025,419. Ultrasonic frequency generating crystal assembly. **34**: 1672—1962
Michalko, Ignatius (see Koren, Heiman W.). **34**: 533—1962
Miessner, Benjamin F. 2,934,988. Tuned reed. **34**: 378—1962
—— 2,942,512. Electronic piano. **34**: 539—1962
—— 2,966,821. Electronic piano. **34**: 1033—1962
Mihaila, John. 2,991,660. Phonograph drive. **34**: 155—1962
Miles, Duane O. (see Perls, Thomas A.). **34**: 1813—1962
Miles, Roger H. and George E. Gress. 3,024,689. Organ valve. **34**: 1313—1962
Miller, Bertrand J. and George Wertwijn. 3,014,995. Transistor hearing aid. **34**: 871—1962
Miller, Carlos C., Jr. 3,007,009. Magnetic recording and reproducing apparatus. **34**: 535—1962
Mills, Robert L. and Joseph Zemanek, Jr. 2,998,091. Low-frequency measurements of specific impedance. **34**: 880—1962
Minter, Jerry B., 2nd. 3,020,361. Electromagnetic engraving apparatus. **34**: 874—1962
Mitchell, Eric (see Hillard, John K.). **34**: 1312—1962
Mitchell, Harmon G. (see Hucke, Ewald William). **34**: 539—1962
Mitchell, Hugh A., Leon D. Furon, and Donald R. Modispacher. 3,036,151. Ultrasonic recording system. **34**: 1813—1962
Mitnitzky, Ingemar (see Söderbaum, Carl G.). **34**: 877—1962

Miura, Yuzo, Tomomichi Tsukada, and Shizuo Hayashi. 2,993,234. Method of manufacturing antistatic record disks. **34**: 155—1962
Mobley, John C. 3,029,554. Wildlife caller. **34**: 1668—1962
Modispacher, Donald R. (see Mitchell, Hugh A.). **34**: 1813—1962
Moe, William West and Herman D. Parks. 3,030,453. Magnetic wire support frame. **34**: 1312—1962
Monfelt, Clinton A. 3,011,381. Accordion pickup. **34**: 542—1962
Montague, Charles H. 2,958,390. Sound muffling device. **34**: 543—1962
Montgomery, Harold C. and John C. Steinberg. 2,996,028. Elevator control apparatus for torpedoes. **34**: 258—1962
Moore, Frank L. (see Helm, Charles W., Jr.). **34**: 1030—1962
Moore, Hilbert R. (see Ilgenfritz, Lester M.). **34**: 881—1962
Morch, Warren C. (see Simpson, Jack N.). **34**: 872—1962
Morgan, Conrad J. 2,957,537. Portable sound suppressor for aircraft jet engines. **34**: 542—1962
Motz, Joseph W. and John H. Reaves. 2,901,699. Frequency measuring instrument. **34**: 254—1962
Muchnick, Samuel N. (see Belli, Remo D.). **34**: 1969—1962
Mueller, Herman H. 2,997,303. Automatic turntable speed and needle changer control for playing intermixed records. **34**: 155—1962
—— 3,003,771. Automatic record player. **34**: 532—1962
Müller, Rudolf, Ulrich Fritze and Hans-Willi Paffrath. 2,959,242. Sound-absorbing system. **34**: 152—1962
—— (see Fritze, Ulrich). **34**: 871—1962
Mullin, John T. 2,977,579. Apparatus for magnetic reproduction. **34**: 875—1962
Murdock, Paul F. 2,936,666. Player piano. **34**: 538—1962
Musgrave, Albert W. 2,990,619. Apparatus for solving seismic problems. **34**: 879—1962
—— **and James C. Eley.** 2,992,694. Time delayed directional seismograph. **34**: 160—1962
Musser, C. Walton (see Dowdell, Thomas de W.). **34**: 1812—1962
Myers, Roy W. 2,995,199. Muffler. **34**: 1036—1962

Naiman, Mark (see Porter, Vincent J.). **34**: 381—1962
Namenyi-Katz, Laszlo. 3,002,670. Magnetic recorder. **34**: 534—1962
Namikawa, Mamoru (see Hoshino, Yasuchi). **34**: 1309, 1311—1962
Narma, Rein. 3,014,993. Phonograph pickup cartridge. **34**: 710—1962
Nations, Carl T. 2,998,494. Recording and reproducing device. **34**: 377—1962
Naydan, Bob N. and Ronald Y. Paradise. 3,028,550. Analog accelerometer feedback loop for deriving velocity information in digital form. **34**: 1315—1962
Nelsson, Nels. 2,996,765. Suspended ceiling and clip therefor. **34**: 1306—1962
Nerwin, Henry N., Jr. 2,921,466. Sonic thickness measuring apparatus. **34**: 381—1962
Neumann, Georg (see Tedlich, Horst). **34**: 710—1962
Nickl, Franklyn G. 2,959,418. Phonograph control unit. **34**: 154—1962
Nishioka, Kazuichi, Kazuo Adachi, and Toru Nishioka. 3,039,139. Apparatus for manufacture of phonograph records. **34**: 1966—1962
Nishioka, Toru (see Nishioka, Kazuichi). **34**: 1966—1962
Nolder, Charles Clifford and Leslie Phillips. 2,973,680. Piano capacitor reactor. **34**: 1034—1962
Nomura, Susumu (see Takayanagi, Kenjiro). **34**: 535—1962
Norum, Thomas W. (see Kent, Larry). **34**: 1032—1962
Norwine, Andrew C. (see Davis, Kingsbury H.). **34**: 1031—1962
Nunn, Howard D. 2,916,715. Pressure transducer. **34**: 378—1962
Nuorivaara, Zachris Enzio Mikael. 2,954,838. Sound deadening or absorbing wallboard. **34**: 152—1962

Oblander, Chester C. 2,994,889. Musical crib mattress and pad. **34**: 154—1962
O'Brien, Richard J: (see Gratian, Joseph W.). **34**: 158—1962
Oles, John S. 2,961,894. Vibration damper. **34**: 545—1962
Olson, Harry F. and Herbert Belar. 3,007,362. Combination random-probability system. 34: 1673—1962
Ongaro, Theodore. 2,970,487. Mechanical vibration generator. **34**: 712—1962
Osborne, Fred H., Howard G. Bauer, and Robert S. Tuttle. 2,969,704. Mechanism for playing chords. **34**: 1033—1962
——, **John H. Riggs, and Howard G. Bauer.** 2,988,945. Electronic musical instrument. **34**: 1313—1962
—— (see Corbett, Michael J., Jr.). **34**: 708—1962
Otto, Johannes (see Schepman, Felix Robert). **34**: 1967—1962
Ouvrier, Gerhard. 3,029,319. Tone arm and magnetic transducer head therefor. **34**: 1158—1962

Padberg, Louis R., Jr. 3,007,133. Unidirectional high level low frequency sound source. **34**: 712—1962
——, **Frederick D. Parker, and Milton D. Papineau.** 3,035,245. Echo ranging system. **34**: 1818—1962
Paffrath, Hans-Willi (see Fritze, Ulrich). **34**: 871—1962
—— (see Müller, Rudolf). **34**: 152—1962
Panay, Takis N. 3,022,385. Sound producer. **34**: 1672—1962
Pancotti, Mario. 3,030,844. Portable organ. **34**: 1676—1962
Pankuch, Henry. 2,999,329. Sound-emitting fishing lure. **34**: 257—1962
—— 3,000,130. Audible fishing lure. **34**: 382—1962
Papineau, Milton D. (see Padberg, Louis R., Jr.). **34**: 1818—1962
Paradise, Ronald Y. (see Naydan, Bob N.). **34**: 1315—1962
Parker, David E. and Keith E. Wetherbee. 2,966,725. Magnetostrictive core production. **34**: 536—1962
Parker, Frederick D. (see Padberg, Louis R., Jr.). **34**: 1818—1962
Parks, Herman D. (see Moe, William West). **34**: 1312—1962
Parr, Josephus O., Jr. 3,029,894. Sonic prospecting. **34**: 1817—1962
Paul, Les. 3,018,680. Electrical musical instrument. **34**: 878—1962
Paulsen, Chris H. 2,958,388. Muffller. **34**: 543—1962
Pavey, George M., Jr. 3,022,852. Means for producing a low frequency seismic signal. **34**: 1817—1962
Payne, Kenneth. 3,016,792. Method of producing a visual musical record. **34**: 877—1962
Pearson, Harry A. 3,030,455. Bone-conduction all-in-one transistor amplifier hearing aid. **34**: 1306—1962
Pearson, Paul A. 2,989,885. Electronic musical instrument and method. **34**: 1313—1962
Pennucci, Enrico E. 3,032,614. Binaural sound phonograph reproducer and adapter. **34**: 1672—1962
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NOL is developing acoustics research vessel. **34**: 358—1962

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1.5 Meetings

Author Index to Abstracts of New York Meeting. **34**: 747—1962

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Award of Pioneers medal for underwater acoustics to Albert Beaumont Wood. **34**: 244—1962

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Cincinnati Meeting, 1961. **34**: 244—1962

Dates of future meetings of the Acoustical Society. **34**: 135, 251, 359, 526, 686, 867, 993, 1154, 1282, 1667, 1797, 1960—1962

Errata and additions pertaining to the Program of the 63rd Meeting of the Acoustical Society of America. **34**: 868—1962

New York meeting in May. **34**: 523—1962

New York 1962. **34**: 1278—1962

Plans to organize a San Francisco Chapter. **34**: 524—1962

Program of the Sixty-Third Meeting of the Acoustical Society of America, Hotel New Yorker, New York, New York, May 23–26, 1962. **34**: 713—1962

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1.6 Members and Membership Lists

Acoustical Society Biennial Award to Alan Powell. **34**: 1279—1962

Award of the Wallace Clement Sabine medal to Leo L. Beranek. **34**: 246—1962

Frederick E. White joins Editorial Board. **34**: 356—1962

Fritz Pordes, 1912–1961. **34**: 357—1962

Georg von Békésy receives Nobel Prize for medicine and other honor. **34**: 247—1962

Gift to Floyd A. Firestone. **34**: 685—1962

Homer Dudley retires from Bell Laboratories. **34**: 524—1962

Howard M. Trueblood, 1884–1962. **34**: 685—1962

Ira J. Hirsh receives NSF Fellowship for University of Paris. **34**: 1664—1962

John Lamb moves to the University of Glasgow. **34**: 249—1962

John M. Hanert (1909–1962). **34**: 1797—1962
Membership classification. **34**: 1667—1962
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New fellows of the Acoustical Society of America. **34**: 247, 358, 1280, 1664—1962
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1.7 Committee Activities
Announcement of forthcoming election. **34**: 133—1962
Annual Reports of the Technical Committees—(Please place these in the order in which the committees appear in the back of any issue of the Journal.) **34**: 1793—1962
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NEWS
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2.2 Auditorium Design. (See also 7.6.)

PAPERS
Optimum acoustic criteria of concert halls for the performance of classical music. Fritz W. Winckel. **34**: 81—1962

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Acoustical suite of the Northern Electric Research and Development Laboratories. A. Jamroz and R. H. Tanner. **34**: 725—1962
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Acoustics of the new Fisher Theater. David L. Klepper. **34**: 726—1962
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School music departments. Lewis S. Goodfriend. **34**: 727—1962
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4.13 Ear Acoustical Impedance

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Acoustic reflex in man. Aage R. Møller. **34**: 1524—1962
Compressional bone conduction in cochlear models. Juergen Tonndorf. **34**: 1127—1962

ABSTRACTS
Impedance of the ear—a variable quantity. Joseph R. Mundie, Jr. **34**: 721—1962

4.14 Ear Protectors, Earplugs

PAPERS
Acoustics of circumaural earphones. E. A. G. Shaw and G. J. Thiessen. **34**: 1233—1962
Free-field threshold shift and temporary threshold shift reduction as measures of efficiency of ear protective devices. J. L. Fletcher and M. Loeb. **34**: 1629—1962
Studies on the aural reflex. III. Reflex latency as inferred from reduction of temporary threshold shifts from impulses. W. Dixon Ward. **34**: 1132—1962

ABSTRACTS
Noise attenuation of current ear-protective devices. J. C. Webster and E. R. Rubin. **34**: 720—1962

PATENTS
Acoustical instruments. Howard W. Bloom. **34**: 1668—1962
Detachable ear plugs for stethoscopes. Marion C. Collins. **34**: 531—1962
Detachable liner for headsets. Vernon F. Gongoll. **34**: 1668—1962
Ear pads. Robert E. Ulrich and George A. Taylor. **34**: 153—1962
Hard shell liquid seal earmuff with isolated inner close coupling ear shell. Martin L. Touger and Robert E. Ulrich. **34**: 153—1962
Headphones. Jack N. Simpson and Warren C. Morch. **34**: 872—1962
Microphone mask. Alfred D. Traller. **34**: 531—1962
Soft helmet for carrying sound attenuating earmuffs. Jackson A. Aileo. **34**: 531—1962

4.15 Perception of Signals. Detection of Signals in Noise

PAPERS
Binaural detection of single-frequency signals in the presence of noise. Mark B. Gardner. **34**: 1824—1962
Effects of background noise on auditory detection of noise bursts. David M. Green and Susan T. Sewall. **34**: 1207—1962
Energy-detection model for monaural auditory detection, Sheila M. Pfafflin and M. V. Mathews. **34**: 1842—1962
Extension of the theory of signal detectability to matching procedures in psychoacoustics. Robert D. Sorkin. **34**: 1745—1962

Human discrimination of auditory duration. C. Douglas Creelman. **34**: 582—1962

Investigation of some parameters of the cutaneous threshold for vibration. Ronald T. Verrillo. **34**: 1768—1962

Optimum signal processing of three-dimensional arrays operating on Gaussian signals and noise. Finn Bryn. **34**: 289—1962

Space–time correlation in spherical and circular noise fields. Melvin J. Jacobson. **34**: 971—1962

LETTERS TO THE EDITOR

Average responses to clicks recorded from the human scalp. C. Daniel Geisler and Walter A. Rosenblith. **34**: 125—1962

Lateral line in fish—possible mode of action. E. E. Suckling. **34**: 127—1962

Loudness as a function of signal duration. Arnold M. Small, Jr., John F. Brandt, and Phillip G. Cox. **34**: 513—1962

Role of time integration in the discrimination of frequency response patterns. F. V. Hunt. **34**: 125—1962

ABSTRACTS

Application of an energy-detector model with internal noise to the detection of signals in the presence of pedestals at varying noise levels. Sheila M. Pfafflin. **34**: 1972—1962

Comments on temporal integration of the ear. Lois L. Elliott. **34**: 1973—1962

Discriminability of differences in the rise time of a tone. James C. Tenney. **34**: 739—1962

Effects of certain auditory environments on protensity. John J. Dreher and William E. Evans. **34**: 739—1962

Effects of spectral components, duration, and rise time of sound on perceived noise level. K. D. Kryter and K. S. Pearsons. **34**: 1973—1962

Errors in the averaging of logarithmic estimators of sound pressures. H. L. Fox. **34**: 738—1962

Factor analysis of tests for listening in noise. J. Donald Harris and Burton H. Cohen. **34**: 746—1962

Importance of instructional set to psychoacoustical scaling. Stanley J. Rule and John W. Little. **34**: 1974—1962

Low-frequency DL's in the presence of a high-frequency noise. R. A. Campbell. **34**: 1973—1962

Onset discrimination for white noise. Irwin Pollack. **34**: 1973—1962

Perception of coloration in filtered Gaussian noise–short-time spectral analysis by the ear. M. R. Schroeder and B. S. Atal. **34**: 738—1962

Pitch of nonuniformly spaced pulses in periodic trains. Newman Guttman and James L. Flanagan. **34**: 1994—1962

Quantitative description of non-Gaussian random signals. Harry Himelblau and Ben West. **34**: 732—1962

Sequential phenomena in signal detection. Edward C. Carterette and Richard C. Atkinson. **34**: 1972—1962

Tapped delayed-line detector for a modified chirp signal. Richard O. Rowlands. **34**: 1972—1962

PATENTS

Aural detection apparatus comprising an acoustical delay line having external feedback circuit. Michael J. Di Toro. **34**: 872—1962

NEWS

Abstract of thesis. **34**: 1281—1962

5. Applied Acoustics, Instruments and Apparatus. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3Z, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified

PAPERS

Simple switching device with phase synchronization. Peter Belton. **34**: 894—1962

LETTERS TO THE EDITOR

Electronic acoustic image converter. Richard G. Goldman. **34**: 514—1962

ABSTRACTS

Mechanical audiofrequency delay line. George H. Ashley. **34**: 719—1962

PATENTS

Acoustic stethoscope. Ralph Cefaly. **34**: 1307—1962

Duck caller and decoy. Neal J. Lynch. **34**: 1669—1962

Electroacoustic warning horn for motor vehicles. Mario Zavattaro. **34**: 1965—1962

Musical crib mattress and pad. Chester C. Oblander. **34**: 154—1962

Noise-making toy. Glenn A. Gordon. **34**: 374—1962

Noisemaking toys. Jerome H. Lemelson. **34**: 1668—1962

Optophone. John S. Abma, Lawrence J. Mason, and David Reagan Rice. **34**: 531—1962

Power horn. Donald Ferrell. **34**: 374—1962

Sound-actuated doll. Christian Dean Berger. **34**: 154—1962

Sound-controllable toy. Christian Dean Berger. **34**: 1669—1962

Sound emitting flying saucer and top. Joseph A. Banoczi. **34**: 373—1962

Sound output controller for signaling devices. James H. Ham, Jr., and Walter Kalin. **34**: 1965—1962

Sound-producing devices. Herbert R. Beebe. **34**: 374—1962

Sound producing devices for dolls, and doll bodies provided with sound producing devices. David Cohn. **34**: 1669—1962

Sound producing toy. Walter M. Sirks. **34**: 1965—1962

Warbling musical whistle. John H. Bacon. **34**: 253—1962

Wildlife caller. John C. Mobley. **34**: 1668—1962

BOOK REVIEWS

Acoustical Techniques and Transducers. M. L. Gayford. (Reviewed by Harry F. Olson.) **34**: 687—1962

5.2 Amplifiers and Attenuators

ABSTRACTS

All-transistor hydrophone preamplifier. Charles B. Durgin. **34**: 1998—1962

PATENTS

Control circuit. Stanley Guskie, Clarence J. Holpuch, and Meyer Marks. **34**: 1669—1962

Measuring and/or recording apparatus. Paul Weber. **34**: 706—1962

5.3 Acoustical Impedance Measurement. (See also 11.4 and 12.3Z.)

ABSTRACTS

Acoustical-impedance characteristics of some sintered metals. James J. Coles and Norman Doelling. **34**: 2003—1962

5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. (See also 5.15 and 12.3f.)

PAPERS

Bandwidth error of symmetrical bandpass filters used for analysis of noise and vibration. L. W. Sepmeyer. **34**: 1653—1962

Resonant side-branch acoustic filters for liquid piping systems. E. L. Hixson, J. V. Kahlbau, and E. E. Mikeska. **34**: 594—1962

LETTERS TO THE EDITOR

Synthesis of a stepped structure for a prescribed reflection coefficient. J. E. Holte and R. F. Lambert. **34**: 680—1962

ABSTRACTS
Bandwidth error of symmetrical bandpass filters used for noise and vibration analysis. L. W. Sepmeyer. **34**: 1982—1962
Directional filtering of summed arrays. R. A. Frosch and C. S. Clay. **34**: 1998—1962
Experiments concerning near-field-noise filtering. J. B. Lord. **34**: 1997—1962
Matched filter detectors for additive arrays or receivers near reflectors. C. S. Clay, R. A. Frosch, and W. L. Liang. **34**: 1997—1962
Measurement of acoustical impedance in liquid-piping systems. E. L. Hixson, J. V. Kahlbau, and E. L. Cousins. **34**: 730—1962
Resonant side-branch acoustic filters for liquid-piping systems. E. L. Hixson, J. V. Kahlbau, and F. O. Bohls. **34**: 730—1962
Use of the modulation properties of periodic sampling in digital spectral analyses. Hamilton C. Walker. **34**: 1982—1962

PATENTS
Automatic tracking spectrum analyzer. Richard R. Hoffmann. **34**: 374—1962
Increase of coupling to mechanical filter end disks to improve response. Nathaniel Bercovitz, Jr. **34**: 374—1962

5.5 Audiometers. (See also 4.4 and 4.5.)

PAPERS
Békésy's audiometer. Ira J. Hirsh. **34**: 1333—1962
Evaluation of the variability in audiometric procedures. J. Edward Jackson, David W. Fassett, Edward C. Riley, and William L. Sutton. **34**: 218—1962

ABSTRACTS
Auditory fatigue and changes in audiometer pen-excursion size. Herman R. Silbiger and Donald N. Elliott. **34**: 746—1962
Physiological noise in relation to audiometry. E. A. G. Shaw and J. E. Piercy. **34**: 745—1962

5.5.1 Broadcasting

PATENTS
Programming apparatus. Wallace J. Kabrick and John K. Birch. **34**: 154—1962

5.7 Frequency Standards, Frequency Measuring and Recording Instruments

PATENTS
Frequency measuring instrument. Joseph W. Motz and John H. Reaves. **34**: 254—1962

5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)

LETTERS TO THE EDITOR
Role of time integration in the discrimination of frequency response patterns. F. V. Hunt. **34**: 125—1962

ABSTRACTS
Loudspeaker fidelity contributed by the reduction in transient distortion. Vesper A. Schlenker. **34**: 738—1962

PATENTS
Acoustical devices. William W. Haerther, Jr. **34**: 1671—1962
Acoustical diaphragm. William W. Haerther, Jr. **34**: 1670—1962
Acoustical enclosures. Herbert H. Steglich. **34**: 1671—1962
Acoustic devices. Roger E. Hamson. **34**: 1671—1962
Combination loudspeaker mounting and lamp. Josef Johann Hammes. **34**: 1669—1962
Detachable spherical loudspeaker enclosure. Howard L. Wilber. **34**: 1669—1962
Dual coaxial speaker. Sidney E. Levy, Arthur Blumenfeld, and Bernard Sharp. **34**: 1670—1962
Electroacoustical device for reproducing low pitch notes. Hans Mayr. **34**: 707—1962
Electrostatic loudspeakers. David T. N. Williamson and Peter J. Walker. **34**: 706 (2 patents)—1962
Folded speaker enclosure. Warren A. Rice. **34**: 1670—1962
Inverted loudspeaker. Walter E. See. **34**: 1669—1962
Loudspeaker. Andrew Stewart Hegeman, Jr. **34**: 1670—1962
Loudspeaker. Louis S. Hoodwin. **34**: 1029—1962
Loudspeaker. John D. Spragins, Jr., Leonard T. Pockman, and George A. Brettell. **34**: 1670—1962
Loudspeaker construction. Joseph A. Hassan. **34**: 254, 375—1962
Loudspeaker construction. Adelore F. Petrie and Duane R. Aubrey. **34**: 706—1962
Loudspeaker diaphragm suspension. John A. King. **34**: 1029—1962
Loudspeaker enclosure. Alfred H. Roberts. **34**: 374—1962
Loudspeaker system. Amar G. Bose. **34**: 1671—1962
Loudspeaker system. Lewis Gladstone. **34**: 1670—1962
Membranes for sound reproducing devices. Eugene Reisz. **34**: 254—1962
Method of forming low flux loss bonds in permanent magnet assemblies. Siegfried J. Zuerker and Benjamin J. Saggese. **34**: 254—1962
Sound reproducing means. Warner W. Clements. **34**: 707—1962
Sound reproducing system. Lloyd J. Bobb, Robert B. Goldman, and George C. Maling. **34**: 1030—1962
Speaker construction. Carl Axel Swanson. **34**: 707 (2 patents)—1962
Speaker system. George M. Bishop. **34**: 707—1962
Spherical loudspeaker enclosure. Howard L. Wilber. **34**: 1669—1962
Swiveling acoustical apparatus. Harris H. Santi. **34**: 1669—1962
Transducer. Charles I. Malme. **34**: 1029—1962
Transducers. Maurice E. Swift. **34**: 254—1962
Vented enclosure type loudspeaker system providing improved low-frequency response. Stig Carlsson. **34**: 1671—1962
Voice coil and diaphragm support for high frequency loudspeaker. Edgar M. Villchur. **34**: 1671—1962

5.9 Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)

PAPERS
Calibration and free-field evaluation of a pressure-gradient microphone. G. B. Thurston and R. L. Heiserman. **34**: 1779—1962
Experimental tunnel-diode electromechanical transducer elements and their use in tunnel-diode microphones. Edward S. Rogers. **34**: 883—1962

LETTERS TO THE EDITOR
Self-biased condenser microphone with high capacitance. G. M. Sessler and J. E. West. **34**: 1787—1962
Shock-wave transducer calibration. R. E. Ziemer and R. F. Lambert. **34**: 987—1962

ABSTRACTS
Comparison of microphone sensitivities obtained by reciprocity and pistonphone methods. T. F. W. Embleton and I. R. Dagg. **34**: 1982—1962
Evaluation of microphone performance in a field of intense nuclear radiation. J. K. Manhart. **34**: 737—1962
Pressure-gradient microphone for sonic-field measurements. R. L. Heiserman and G. B. Thurston. **34**: 737—1962
Self-biased condenser microphones with high capacitance. G. M. Sessler and J. E. West. **34**: 1981—1962

PATENTS
Electroacoustic devices. Rudolf Görike. 34: 376—1962
Electroacoustic transducer. Walter Fiala. 34: 707—1962
Electroacoustic transducer. Karl Schoeps and Willy Küsters. 34: 375—1962
Magnetic structure. Leslie J. Anderson. 34: 375—1962
Microbarophone. John V. Atanasoff and Anthony Carnvale. 34: 376—1962
Microphone. Frank Swinehart. 34: 375—1962
Microphone assembly. Frank Swinehart. 34: 376—1962
Microphone jamming system. Oleg C. Enikeieff. 34: 376—1962
Noise-reducing microphone assembly. Harold A. Hart. 34: 376—1962
Telephone transmitter. Harold C. Pye. 34: 531—1962
Telephone transmitters. Anthony Crisp Beadle. 34: 375—1962
Valve and microphone base assembly. Aaron Bloom and Orland W. Wilcox. 34: 375—1962
Vibratory piezoelectric transducers. Ilyitch J. Sobel and Edward Lessing. 34: 707—1962

5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n)

ABSTRACTS
Mutual interaction between elements of an array. C. Sherman. 34: 1979(T)—1962
Optimum shading for a conventional acoustic line array of receiving elements operating in a combined-noise environment. A. H. Lubell. 34: 1984—1962
Use of computers for the design of arrays. R. Faires. 34: 1979(T)—1962

PATENTS
Electronic computer for sound ranging system. Alfred Davis. 34: 1671—1962

5.11 Oscillators, Electrical and Mechanical

PATENTS
Electromechanical vibrator. Lee G. Bostwick and Robert L. Guncelle. 34: 1966—1962
Vibrating reed oscillator controller. Henry P. Birkemeier. 34: 1965—1962

5.13 Public Address Systems and Sound Picture Installations

ABSTRACTS
Design of school sound systems. P. H. Davis, Jr. 34: 727—1962
Panel discussion—Symposium on Speech Reinforcement. Lewis S. Goodfriend, David L. Klepper, John Volkmann, and Antares Parvulescu. 34: 738(T)—1962
Performance criteria of speech-reinforcement systems based on psychoacoustical considerations. Wayne Rudmose. 34: 738(T)—1962
Sound-amplification system for Philharmonic Hall, New York. David L. Klepper. 34: 1975—1962

PATENTS
Communication apparatus. Kenneth M. Baxt. 34: 1307—1962
Portable lectern. Henry W. Shaw. 34: 1671—1962
Portable power megaphone apparatus. Frederick L. Hardesty. 34: 377—1962
Sound reproduction system. Derk Kleis and Roelof Vermeulen. 34: 707—1962
Sound system for outdoor theaters. Richard P. Herzfeld. 34: 1156—1962

5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)

ABSTRACTS
Errors in the averaging of logarithmic estimators of sound pressures. H. L. Fox. 34: 738—1962

PATENTS
Noise exposure meter. Robert S. Gales and Irving Rehman. 34: 531—1962

5.16 Sound Recording and Reproducing. General

ABSTRACTS
Practical systems for quasi-stereophony. A. J. Prestigiacomo and M. R. Schroeder. 34: 737—1962

PATENTS
Apparatus for production of sound recordings. C. Robert Fine. 34: 1156—1962
Apparatus for use in producing sound motion picture film. Clarence Robert Fine. 34: 254—1962
Business machine with control device for sound-recording apparatus. Friedrich Wunderlich. 34: 154—1962
Device for projecting still picture film with synchronized sound. Stephen A. Platt. 34: 1156—1962
Discriminatory control network for recording systems. William W. Logan. 34: 707—1962
Electronic cue inserter. Warren C. Gilman. 34: 1156—1962
Flexible head mechanism guided by tape movement. Jean Thevenaz. 34: 1156—1962
Magnetic quarter-stripe sound tracks for 16-mm film. Maxwell A. Kerr. 34: 873—1962
Method of reproducing bilingual sound motion picture film. Eugene A. De Lukawiecki. 34: 377—1962
Recording and reproducing device. Carl T. Nations. 34: 377—1962
Record recording and playing device. James R. Dennis. 34: 531—1962
Sound motion picture projector. George F. Krtous. 34: 1966—1962
Sound projector for projecting still transparencies on film and reproducing sound from a sound record area. William Castedello and Werner K. Bender. 34: 377—1962
Sound reproducing systems. Harold C. Hogencamp. 34: 1671—1962
Sound translating apparatus. Charles W. Helm, Jr., and Frank L. Moore. 34: 1030—1962
Synchronizing device for a film projector and a sound tape apparatus. Hermann Hoeller. 34: 531—1962

BOOK REVIEWS
Stereophonic Sound. Norman H. Crowhurst. (Reviewed by F. E. White.) 34: 252—1962

5.16d Disk Recording (including cutting and embossing)

PATENTS
Apparatus for manufacture of phonograph records. Kazuichi Nishioka, Kazuo Adachi, and Toru Nishioka. 34: 1966—1962
Apparatus for pressing disk-shaped phonograph records. Jan Christoffel van Houten. 34: 1030—1962
Apparatus for pressing gramophone records. Robert Albert Renoux. 34: 532—1962
Apparatus for transmitting mechanical vibrations. Machiel de Vries. 34: 1672—1962
Arrangement in a record-changing gramophone. Anders Ansar. 34: 1031—1962
Arrangement in center poles for record changing phonographs. Andreas Perge. 34: 1967—1962
Automatic phonograph. Michael J. Corbett, Jr., Fred H. Osborne, and Robert S. Tuttle. 34: 708—1962
Automatic phonograph. David C. Rockola. 34: 1157—1962
Automatic phonograph. John J. Toolan. 34: 156—1962

Automatic phonograph record player. Roland Di Sabatino. 34: 1967—1962
Automatic phonographs. Hans Christian Hansen. 34: 873—1962
Automatic record-changers. Edward Thomas Humby and Kenneth Charles Bone. 34: 710—1962
Automatic record changer speed control. Edwin S. Bara. 34: 532—1962
Automatic record player. Herman H. Mueller. 34: 532—1962
Automatic rejector for phonograph. Lyndon A. Durant. 34: 1307—1962
Automatic speed control mechanism for phonographs. Mahlon W. Kenney and Jacob C. Kiefer. 34: 1811—1962
Automatic turntable speed and needle changer control for playing intermixed records. Herman H. Mueller. 34: 155—1962
Binaural sound phonograph reproducer and adapter. Enrico E. Pennucci. 34: 1672—1962
Cartridge for phonograph pickup. Clarence F. Jensen. 34: 1968—1962
Central record spindle for records having a large central aperture. Bruno Hoffmann. 34: 710—1962
Channel and replaceable stylus assemblies. Roy Dally and George W. Fabel. 34: 1967—1962
Clamp for matrices for molding phonograph records. Robert W. Adams and Allan R. Ellsworth. 34: 873—1962
Continuous recording system with indexing means. Kingsbury H. Davis and Andrew C. Norwine. 34: 1031—1962
Control mechanism for phonographs. Willard J. Faulkner and Jack E. Bayha. 34: 1967—1962
Device for altering phonograph speed. Nelson Chade. 34: 1967—1962
Driving devices for moving the sound head of dictating machines. Heinz Matusche. 34: 708—1962
Dual sound track transducer head. Horst Tedlich, Horst Angenendt, and Georg Neumann. 34: 710—1962
Electromagnetic engraving apparatus. Jerry B. Minter, 2nd. 34: 874—1962
Electromagnetic phonograph pickups. John H. McConnell. 34: 1812—1962
Electromechanical transducer. Joseph F. Grado. 34: 1812—1962
Four-speed turntable driving mechanism for phonographs and manual control instrumentalities therefor. Arthur K. Tateishi. 34: 377—1962
Gramophone pickup mechanism. Aubrey G. Carroll. 34: 1030—1962
Gramophone record playing apparatus. Alexander James Rae. 34: 709—1962
Indicating device for the contact weight of phonograph pickups. Heinrich Zimmermann and Hans Hermann. 34: 1030—1962
Lightweight battery operated transistorized dictating machine. Donald F. Balmer and William H. Lyon. 34: 711—1962
Magnetic stereophonic phonograph pickup. Peter E. Pritchard. 34: 1968—1962
Magnetostrictive phonograph pickup and system embodying the same. Walter W. Kristoff, Jr. 34: 1157—1962
Mechanism for the preselection of gramophone records. Wilhelm Foelkel and Friedel Horstmann. 34: 709—1962
Method of assembly of phonograph pickup cartridges. Henry J. Cvetko and Charles J. Chapin. 34: 710—1962
Method of manufacturing antistatic record disks. Yuzo Miura, Tomomichi Tsukada, and Shizuo Hayashi. 34: 155—1962
Method of manufacturing phonograph records. Emory G. Cook. 34: 1157—1962
Mounting means for phonograph tone arms. Robert R. Burdick and Duane E. Punkar. 34: 707—1962
Moving coil electromechanical transducers. Philip Barnet Vanderlyn. 34: 708—1962
Multiple coil electromagnetic sound reproducer. Walter O. Stanton. 34: 1158—1962
Multiple speech phonograph. John W. Ryan. 34: 873—1962
Noise eliminator. Paul J. Malinaric. 34: 377—1962
Phonograph. Colin B. Dale. 34: 1031—1962
Phonograph. John E. Demaree and William MacPherson. 34: 873—1962
Phonograph. Wolfgang Hasselbach, Anton Bauer, and Hermann Scherer. 34: 1157—1962
Phonograph apparatus. Marcel Jules Helene Staar. 34: 533—1962
Phonograph control unit. Franklyn G. Nickl. 34: 154—1962
Phonograph drive. John Mihaila. 34: 155—1962
Phonographic apparatus. Takeshi Aoki. 34: 708—1962
Phonographic machine. William G. Whitney. 34: 1030—1962
Phonographic record changers. Joseph Erwood. 34: 708—1962
Phonographic recording. Robert Wagner. 34: 1157—1962
Phonographic record-player tone-arms. Jean Leon Albert Borthayre. 34: 1966—1962
Phonograph pickup arm. Walter O. Stanton. 34: 155—1962
Phonograph pickup cartridge. Rein Narma. 34: 710—1962
Phonograph record. Fred W. Scott. 34: 1811—1962
Phonograph record changers. Harry Da Costa. 34: 709—1962
Phonograph stylus and mounting therefor. Clarence F. Jensen. 34: 532—1962
Phonograph stylus and record cleaner and protective apparatus. Clyne W. Lunsford. 34: 1157—1962
Phonograph test method. Jack Feinstein. 34: 874—1962
Phonograph tone arm constructions. David Mankovitz. 34: 708—1962
Phonograph transducer. Joseph F. Grado. 34: 711—1962
Phonograph trigger mechanisms. Hans Christian Hansen. 34: 709—1962
Pickup. Machiel de Vries. 34: 156—1962
Piezoelectric pickup. Machiel de Vries. 34: 874—1962
Piezoelectric transducer for stereophonic phonograph pickup. Frank A. Hester. 34: 1812—1962
Record changer. Edwin S. Bara. 34: 1810—1962
Record changer. Fred Krahulec and Michael R. Siuda. 34: 155—1962
Record changer mechanism. Ralph W. Galke and Richard A. Hathaway. 34: 1811—1962
Record changing mechanism. Joachim Harnish and Hans Hermann. 34: 874—1962
Recorded adapter for phonograph records. Claude E. Frink. 34: 1966—1962
Record feeding arrangement by the tone arm. Hans Christian Hansen. 34: 533—1962
Record feeding arrangements. Hans Christian Hansen. 34: 1811—1962
Recording machine. Richard Kobler. 34: 1811—1962
Record player and selecting system therefor. Lyndon A. Durant. 34: 1672—1962
Record players. Dominikus Weise. 34: 1966—1962
Record repeater. Robert A. Wolfe. 34: 1811—1962
Record repeating attachment for phonograph. Emery A. Hicks. 34: 154—1962
Record-reproduce system. George W. Esser. 34: 874—1962

Record stack height compensating mechanism for the needle of tone arm of automatic record changers. Manlio Brandizzi. 34: 1812—1962
Record supporting and releasing spindle for automatic talking machines. Lawrence Vincent Guest. 34: 378—1962
Regulation of head spacing by air bearing means. Joseph M. Uritis. 34: 1157—1962
Repeating mechanism. Rudolph F. Mallina. 34: 1030—1962
Scanning control mechanism for phonograph record changer. Harry Herbert Vanderzee and George S. Brown, Jr. 34: 154—1962
Self-supporting electromechanical transducer assembly. James M. Jacque. 34: 532—1962
Signal transducing systems. Paul Weathers. 34: 533—1962
Sound recording and reproducing apparatus. Heinz Matusche. 34: 1030—1962
Sound reproducing apparatus. Herbert A. Schwan. 34: 155—1962
Sound reproducing machines. Joseph Foster and Richard Henry Mallard. 34: 1811—1962
Sound reproducing machines. Richard Henry Mallard. 34: 1968—1962
Sound reproducing systems. Hans C. Hansen. 34: 155—1962
Speed adapters for phonographs. Elvin F. Pierce. 34: 1157—1962
Speed shift control for phonographs. Jack W. Brown. 34: 711—1962
Spindle for automatic drop-type phonographs. Victor Jorner. 34: 874—1962
Spindles for record changing gramophones and the like. Walter Frederick Manning. 34: 710—1962
Spindle with feeder position record changing phonographs. Hans Christian Hansen. 34: 1812—1962
Stereophonic magnetic phonographic pickup cartridge. Peter E. Pritchard. 34: 710—1962
Stereophonic recording. Peter C. Goldmark, Benjamin B. Bauer, and John M. Hollywood. 34: 709—1962
Styli holder for phonograph pickup cartridges. Eugene A. Blashewski. 34: 709—1962
Stylus recording with superimposed high frequency excitation. Robert Wagner. 34: 1812—1962
Stylus securing means for phonograph pickup cartridges. James M. Jacque. 34: 532—1962
Tone arm assembly. Helmut Batsch and August Freise. 34: 532—1962
Tone-arm damper. Jacob Rabinow. 34: 1810—1962
Tone arm mechanism. Herbert P. Raabe. 34: 533—1962
Tone arm positioning assembly. Maurice E. Hardy and Werner H. Puls. 34: 1157—1962
Tone arm suspension and balancing system. Raymond C. Siebert. 34: 1307—1962
Transducer. Joseph W. Crownover. 34: 1811—1962
Transducer. Felix Robert Schepman, Nico Wittenberg, and Johannes Otto, and Michael van Langen. 34: 1967—1962
Transducer apparatus. Cosler D. Knight. 34: 254—1962
Transducer assembly. Chester A. Snow, Jr., and Arthur A. Klebba. 34: 533—1962
Transducer head for dual sound track recording. August Freise. 34: 709—1962
Transducing device. Herman Cornelis Lalesse. 34: 1031—1962
Turntable. Raymond C. Siebert. 34: 1307—1962

5.16f Film Recording (by photographic means)

PATENTS

Single film rerecording system. Olin Brittingham Gunby. 34: 156—1962
Sound reproducer for reproducing sound from a sound track area on film. John A. Maurer. 34: 156—1962

5.16m Magnetic Recording

PATENTS

Adjustable mountings for magnetic heads and the like. Chester E. Beachell. 34: 158—1962
Apparatus for magnetically recording high-frequency signals by means of a rotating transducer means. Bernard E. Beckner and Jack H. Irving. 34: 1309—1962
Apparatus for magnetically recording video-frequency signals including ambient fluid bearing means. 34: 1309—1962
Apparatus for magnetic reproduction. John T. Mullin. 34: 875—1962
Apparatus for recording and for playback of sound utilizing a tape. Richard K. Hoskin. 34: 534—1962
Apparatus for recording signals on magnetic tape. Chester E. Beachell. 34: 876—1962
Apparatus for repeating the last position of a magnetic recording. Rudolf Singer. 34: 1310—1962
Arrangement of magnetic heads for tape recorders. Siegmund Loewe and Werner Zorn. 34: 876—1962
Automatic adjustable film support for magnetic recorder. Edward S. Leslie. 34: 1310—1962
Automatic recording machine. Donald W. Collier, William G. Whitney, and Neal T. Williams. 34: 157—1962
Automatic selection of sound tracks in a drum reproducer. Wilbur E. Walters. 34: 156—1962
Compensation for distortion in magnetic recording. Louis W. Erath and Louis B. McManis. 34: 535—1962
Controlling magnetic sound recording and reproducing devices. Werner Zorn. 34: 1310—1962
Control linkage for cartridge type magnetic recording and reproducing device. Emil Tiger. 34: 157—1962
Device for copying magnetic records. Yasushi Hoshino, Mamoru Namikawa, and Shigezo Tochihara. 34: 1309—1962
Device for quick stopping of recorder tape in magnetic recorders. Karl Tedisch. 34: 1311—1962
Driving mechanism for sound recording and reproducing devices. Klaus Rennspies. 34: 876—1962
Electromagnetic playback system. Marvin Camras. 34: 877—1962
Endless magnetic record belt and sound track control means therefor. John Loehr. 34: 874—1962
Frequency selective negative feedback recording circuitry. James J. Davidson. 34: 1311—1962
Half/full track magnetic recording. Joseph W. Gratian and Richard J. O'Brien. 34: 158—1962
Head adjusting means for signal recording or reproducing apparatus. James P. Fay and James K. Pickard. 34: 1312—1962
Magnetic head assemblies. William T. Darou, Jr., William J. Gorman, and James F. Metcalf. 34: 157—1962
Magnetic head construction. Michael Rettinger. 34: 1311—1962
Magnetic head suspension. Otto Hohnecker. 34: 1308—1962
Magnetic pickup heads with replaceable pole-pieces. Hans-Werner Pieplow. 34: 1311—1962
Magnetic reading device. Sidney M. Rubens. 34: 158—1962
Magnetic recorder. George H. Eash. 34: 535—1962
Magnetic recorder. Laszlo Namenyi-Katz. 34: 534—1962
Magnetic recording. Jerome H. Lemelson. 34: 1309—1962
Magnetic recording and reproducing apparatus. Carlos C. Miller, Jr. 34: 535—1962
Magnetic record transducing heads. Heiman W. Koren and Ignatius Michalko. 34: 533—1962
Magnetic reproducing apparatus. Marion P. Shorb. 34: 1309—1962
Magnetic sound recording device. Siegmund Loewe and Werner Zorn. 34: 1308—1962

Magnetic sound reproduction. Barton A. Proctor. 34: 535—1962
Magnetic tape apparatus. Robert M. Brumbaugh and Walter J. Cheney. 34: 534—1962
Magnetic tape apparatus. Ralph A. Conly. 34: 1310—1962
Magnetic tape apparatus. Rene J. Gaubert. 34: 158—1962
Magnetic tape apparatus. Walter T. Selsted. 34: 157—1962
Magnetic tape sound recording and reproducing apparatus. Thomas L. Davies. 34: 876—1962
Magnetic transducer. Wesley E. Dickinson. 34: 875—1962
Magnetic transducer. Wesley A. Holman. 34: 875—1962
Magnetic transducing heads. Peter George Briggs. 34: 535—1962
Magnetic transducing method and system. Donald L. Drukey. 34: 534—1962
Magnetic wire support frame. William West Moe and Herman D. Parks. 34: 1312—1962
Magnetostrictive storage apparatus. Simon Levin. 34: 1308—1962
Means for protecting a magnetic sound record sheet from stray magnetic field. Yasushi Hoshino, Mamoru Namikawa, and Shigezo Tochihara. 34: 1311—1962
Method and apparatus for mixing and recording multiple sound signals. Walter H. Bach. 34: 536—1962
Method of making a magnetic head for recording reproducing. Otto Kornei. 34: 534—1962
Method of making magnetic transducer heads. Leo J. Emenaker and Mark M. Siera. 34: 534—1962
Method of recording and apparatus for recording signals. Derk Kleis. 34: 876—1962
Oil film spacer for magnetic recording device. John J. Lynott. 34: 1310—1962
Pliant disk magnetic recording apparatus. S. M. Fomenko. 34: 1308—1962
Pulse width recording. Kenjiro Takayanagi and Susumu Nomura. 34: 535—1962
Recorder-reproducer apparatus. George B. Shields. 34: 1311—1962
Recording and reproducing system and method. Harold V. Clark and Elwin MacRae. 34: 1312—1962
Selective recording of continuous information. Henry Von Kohorn. 34: 1311—1962
Signal transfer and guide fixture for magnetic information medium. Harold Gallina. 34: 1308—1962
Sound recording and reproducing apparatus. Eudore Brasseur. 34: 875—1962
Sound translating apparatus. Ronald F. Fleming. 34: 1312—1962
Speed controls for reproduction of tape recordings. Wilson M. Brubaker. 34: 1309—1962
Switching arrangement for eliminating noise in a tape recording and reproducing system. Ernst Genning. 34: 1310—1962
System for broad-band recording. Heina P. Wehde and Paul G. Rothe. 34: 1308—1962
System for recording and reproducing signal waves. Hans B. Belck. 34: 1308—1962
Tape recorder head mounting. Wayne E. Schober. 34: 1311—1962
Tape recorder monitoring system and start-stop device therefor. Robert Bumstead and Ralph W. Bumstead. 34: 1309—1962
Tape recording and reproducing apparatus and drive system therefor. Dwight W. Brede. 34: 534—1962
Tone arm and magnetic transducer head therefor. Gerhard Ouvrier. 34: 1158—1962
Transverse recording device using a tubular tape medium. James P. Fay. 34: 875—1962
Variable drive friction controlled recording system. Anton Marian Springer. 34: 158—1962
Video recorder tape and head speed control system. Charles P. Ginsburg, Shelby F. Henderson, Jr., Ray M. Dolby, and Charles E. Anderson. 34: 875—1962
Video tape recording system. Leonard C. Maier, Jr., James E. Keister, Burton R. Lester, and Benjamin G. Walker. 34: 157—1962
Voice actuated relay circuit. Matthew P. Langendorf. 34: 536—1962
Wide band data recording and reproducing system and method. Bernard M. Brenner and William Barnhart. 34: 876—1962
Wide band magnetic system. Charles E. Anderson. 34: 157—1962

5.17 Telephones, Telephone Earphones, Intercommunication Systems. (See also 5.13.)

PAPERS

Acoustics of circumaural earphones. E. A. G. Shaw and G. J. Thiessen. 34: 1233—1962
Condenser earphones with multiple layers of solid dielectric. G. M. Sessler and J. E. West. 34: 1774—1962

ABSTRACTS

Performance of Nike commercially available communication headsets. E. T. Oddo. 34: 2002—1962

PATENTS

Amplifying device. Carl G. Söderbaum and Ingemar Mitnitzky. 34: 877—1962
Apparatus for announcing to a caller a connection with the party called prior to the caller's speaking into the telephone. Chiyoichi Ando. 34: 159—1962
Communication and paging system. Oleg C. Enikeieff. 34: 378—1962
Electroacoustic transducer. Harold C. Pye. 34: 255—1962
Loudspeaking telephone instrument. David Eklöv. 34: 1672—1962
Polarized electromagnetic device. Sten D. Vigren, Per H. E. Claesson, and Rolf A. Zander. 34: 536—1962
Sound powered telephones. Jacques M. N. Hanlet. 34: 536—1962
Sound-transducing apparatus. Raymond T. Christensen and Leonard E. Wojcik. 34: 1031—1962
Telephone apparatus. David Eklöv. 34: 1672—1962
Telephone set. Isidor I. Kastel. 34: 536—1962
Voice-control telephone conference system. John K. Hillard and Eric Mitchell. 34: 1312—1962

5.18 Transducing Principles, Structures, and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)

PAPERS

Experimental tunnel-diode electromechanical transducer elements and their use in tunnel-diode microphones. Edward S. Rogers. 34: 883—1962
Investigation of the line-and-cone underwater sound transducer. D. L. Baird and C. M. McKinney. 34: 1576—1962
Preloading of acoustic transducers for high-pressure operation. Arthur D. Brickman. 34: 305—1962
Theory of a passive, reversible, distributed-coupling transducer. W. James Trott. 34: 333—1962
Theory of ultrasonic delay lines for direct-current pulse transmission. 34: 1247—1962

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Shock-wave transducer calibration. R. E. Ziemer and R. F. Lambert. 34: 987—1962

ABSTRACTS

Capacitance detector for loss measurements. Bernard E. Droney. 34: 1982—1962
Design and calibration of wide-range acoustic transducers. Bob R. Beavers. 34: 1981—1962

Mechanical shocks produced on hearing-aid transducers. M. D. Burkhard. **34**: 1981—1962

Method for measuring acoustic radiation resistance of a transducer generating intense ultrasonic cavitation. Yoshimitsu Kikuchi, Hiroshi Shimizu, and Daitaro Okuyama. **34**: 723(T)—1962

Use of computers for the design of electroacoustic transducers. O. Akervold. **34**: 1979(T)—1962

SUBTITLES

Transducer circuits. V. Mangulis. **34**: 1559—1962

PATENTS

Apparatus for transmitting sonic vibrations into liquid bodies. Albert G. Bodine, Jr. **34**: 1813—1962

Directional sound detection. James E. White. **34**: 877—1962

Electroacoustic transducer. Hugh S. Knowles. **34**: 537—1962

Electroacoustic transducer. Frank Massa. **34**: 537—1962

Electroacoustic transducer. Klemens Wiehl. **34**: 1968—1962

Electroacoustic transducers. Robert R. Gamzon and Ephraim H. Frei. **34**: 711—1962

Electromechanical transducer. Vaughan A. Bernier. **34**: 1031—1962

Electromechanical transducers. Warren P. Mason and Robert N. Thurston. **34**: 537—1962

Magnetostrictive core production. David E. Parker and Keith E. Wetherbee. **34**: 536—1962

Magnetostrictive transducer. Harold J. McCreary. **34**: 1673—1962

Nonlinear transducer armature. Elvin D. Simshauser. **34**: 537—1962

Piezoelectric fuze. Thomas de W. Dowdell and C. Walton Musser. **34**: 1812—1962

Piezoelectric transducer. Glenn N. Howatt. **34**: 1673—1962

Pressure transducer. Howard D. Nunn. **34**: 378—1962

Resonant reactively operating variable position transducer. Wilbur T. Harris. **34**: 1158—1962

Sinusoidal pressure generator. Thomas A. Perls and Duane O. Miles. **34**: 1813—1962

Sounding attachment. Charles E. Barthel. **34**: 378—1962

Sound producer. Takis N. Panay. **34**: 1672—1962

Supports for vibratory devices. Burton R. Rawding. **34**: 1158—1962

Transducer. Abraham I. Dranetz and Hugh J. Cullin. **34**: 536—1962

Transducers. Robert Hill Robins. **34**: 537—1962

Ultrasonic frequency generating crystal assembly. Hal C. Mettler. **34**: 1672—1962

Ultrasonic transducer. Walter Welkowitz. **34**: 1031—1962

Vibratory reed in electronic heading sensing device. Irvin S. Jacobsen. **34**: 1968—1962

5.18m Magnetic Transducers: Magnetostriction

PATENTS

Electromagnetic device for measuring pressure. Borivoj Dubský and Oldřich Straka. **34**: 1968—1962

Vibrating head. Paul Bruninghaus. **34**: 1968—1962

5.18p Piezoelectric Transducer, Ferroelectrics

PAPERS

Determination of the parameters of a piezoelectric transducer from the decay of resonant vibrations. M. Redwood. **34**: 895—1962

Generation and detection of ultra-high-frequency sound in liquids. Floyd Dunn and John E. Breyer. **34**: 775—1962

Measurement of small values of electromechanical coupling coefficient in piezoelectric transducers. Kimio Shibayama. **34**: 1883—1962

Note on the radial deformation of a piezoelectric, polarized spherical shell with a symmetrical temperature distribution. D. K. Sinha. **34**: 1073—1962

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Low resonant-frequency barium-titanate transducer. L. Wallace Dean, III, and N. Addison Ball. **34**: 347—1962

Supplement to: The electroacoustic sensitivity of cylindrical ceramic tubes, by R. A. Langevin. C. P. Germano. **34**: 1139—1962

ABSTRACTS

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Inherent limitations of piezoelectric transducers. F. Schloss. **34**: 719—1962

Measurement of small values of electromechanical coupling coefficient in piezoelectric transducers. Kimio Shibayama. **34**: 719—1962

Shift in the location of resonant frequencies caused by large electromechanical coupling in thickness-mode resonators. M. Onoe, H. F. Tiersten, and A. H. Meitzler. **34**: 718—1962

Synthesis of the steady-state equivalent circuit of a piezoelectric electroacoustic transducer. D. B. James. **34**: 1971—1962

Thickness vibrations of piezoelectric plates. H. F. Tiersten. **34**: 718—1962

SUBTITLES

Piezoelectric media. H. J. McSkimin. **34**: 1272—1962

Piezoelectric transducers. William J. Fry and Floyd Dunn. **34**: 189—1962

Transducer calibration. W. W. Lester and E. A. Hiedemann. **34**: 266—1962

PATENTS

High resolution piezoelectric transducer. Elliott A. Henry. **34**: 1813—1962

5.19 Tuning Forks

PATENTS

Means for controlling the frequency of a tuning fork. Josiah J. Godbey. **34**: 1969—1962

Tuning form assembly. William J. Holt. **34**: 255—1962

5.20 Tone and Wave Synthesizers

SUBTITLES

Tone synthesizer. Harvey Fletcher, E. Donnell Blackham, and Richard Stratton. **34**: 750—1962

5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i, 12.3p, and 12.3v.)

PAPERS

Vibration of circular plates. Thein Wah. **34**: 275—1962

NEWS

"Acoustic vases" found in Sardinia. **34**: 134—1962

6. Musical Instruments and Music

6.1 General, Unclassified

PAPERS

Calculation of loudness levels for musical sounds. B. G. Churcher. **34**: 1634—1962

Quality of piano tones. Harvey Fletcher, E. Donnell Blackham, and Richard Stratton. **34**: 749—1962

LETTERS TO THE EDITOR

Comment on "Aid to music composition employing a random probability system." J. Murray Barbour. **34**: 128—1962

Helmholtz's aversion to tempered tuning experimentally shown to be a neurological problem. Max F. Meyer. **34**: 127—1962

Listeners can be seduced to perceive the paradoxical ratio 51:87 as either one or another truly melodical interval. Max F. Meyer. **34**: 1277—1962
On the perception of the frequency ratio 55:32. W. Dixon Ward. **34**: 679—1962
Ratio relationships in melody. Paul C. Boomsliter and Warren Creel. **34**: 1276—1962

ABSTRACTS
Timbre cues and the identification of musical instruments. E. L. Saldanha and John F. Corso. **34**: 717—1962

PATENTS
Combination random-probability system. Harry F. Olson and Herbert Belar. **34**: 1673—1962
Method of producing a visual musical record. Kenneth Payne. **34**: 877—1962
Musical calculator. Owen L. West. **34**: 1673—1962
Musical chord chart. Edward J. McGinley. **34**: 1032—1962
Music chart. Edward J. McGinley. **34**: 1032—1962
Music instruction device. Boris M. Lang. **34**: 1031—1962
Music transposition and chord construction device. Frank E. Duffy and Joseph Thomas Haczek. **34**: 378—1962

BOOK REVIEWS
Phänomene des musikalischen Hörens. Fritz Winckel. (Reviewed by Abe Pepinsky). **34**: 251—1962

6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators

PATENTS
Drum beater. Josephus B. Thompson. **34**: 1673—1962
Mechanical audio and visual signal coordinating device. William A. Karraker. **34**: 877—1962
Method of making a musical comb. Peter Ganine. **34**: 255—1962
Musical device. Richard L. Chute. **34**: 1312—1962
Musical instrument. Albertus Sluyter. **34**: 537—1962
Toy musical instrument. James U. C. Ryan and John W. Ryan. **34**: 1673—1962
Tuned musical comb. Georges Groux. **34**: 877—1962
Vibrating bar type musical instrument having strikers. Larry Kent and Thomas W. Norum. **34**: 1032—1962

6.3 Brass Wind Instruments (lip-vibrated)

ABSTRACTS
Optimum lengths of valve tubes for brass wind instruments. Robert W. Young. **34**: 716—1962
Quantitative analysis of flute design. A. H. Benade and J. W. French. **34**: 716—1962

PATENTS
Combination moisture dehydrator and wind-blown musical instrument. John J. Ressler. **34**: 538—1962
Device for deflecting the tone of a musical instrument. William E. Laas. **34**: 1674—1962
Electroformed mouthpipe and mouthpiece receiver. Earle L. Kent and David Albert LeFevre. **34**: 1158—1962
Musical instrument valve construction. Edwin R. Eash. **34**: 1313—1962
Musical instrument valve mechanism. Leland B. Greenleaf. **34**: 1674—1962
Musical wind instrument. Arnold R. Brilhart. **34**: 1673—1962
Valve trumpet. Davis Shuman. **34**: 538—1962
Wind instrument of the cup mouthpiece type. Earle L. Kent. **34**: 1312—1962

6.4 Drums and Other Membranophonic Instruments

PATENTS
Beater for drums. Bruce W. Dane. **34**: 1969—1962
Drum head. Remo D. Belli and Samuel N. Muchnick. **34**: 1969—1962
Drum head and like assemblies. James V. Erwin. **34**: 255—1962
Drum head auxiliary unit. Rudolph R. Kleiner and Jerome Zarcone. **34**: 1313—1962
Drum mounting. Henry H. Slingerland, Jr. **34**: 1969—1962
Drums. Fred J. LaLonde. **34**: 1674—1962
Electrically operated player for bass drums. Mike Slawienski. **34**: 255—1962
Musical drums. Lewis Davis. **34**: 1032—1962
Practice drum set. Francis J. Ippolito. **34**: 1969—1962
Tuning mechanism for drums. William F. Ludwig. **34**: 1032—1962

6.5 Pipe Organs

ABSTRACTS
Quality of organ tones. Harvey Fletcher, E. Donnell Blackham, and Douglas A. Christensen. **34**: 1991—1962
Role of edgetone action in an organ pipe. Alan Powell. **34**: 1995—1962

SUBTITLES
Organ tones. B. G. Churcher. **34**: 1638—1962

PATENTS
Musical instrument key action. Richard F. Fauser. **34**: 1313—1962
Organ valve. Roger H. Miles and George E. Gress. **34**: 1313—1962
Pipe organ. Val Holzinger. **34**: 538—1962

6.6 Pianos and Other Keyboard Stringed Instruments

PAPERS
Quality of piano tones. Harvey Fletcher, E. Donnell Blackham, and Richard Stratton. **34**: 749—1962

ABSTRACTS
Vibration of stiff piano strings. Harvey Fletcher. **34**: 1995—1962

PATENTS
Drop-type piano action. Henry G. Behning. **34**: 1674—1962
Housing and sounding board for a stringed musical instrument. Floriano Peixoto da Costa. **34**: 1674—1962
Magnetic control means for piano dampers. Julius Schwarzbaur. **34**: 1032—1962
Piano. Stanley R. Facey and Percy W. P. Hancock. **34**: 538—1962
Piano action. Ewald William Hucke and Harmon G. Mitchell. **34**: 539—1962
Piano and the like musical instruments. Kinya Yamamoto and Hideo Itokawa. **34**: 538—1962
Piano attachment. Martin Rothman and Irving Bernstein. **34**: 1032—1962
Piano player. Lee B. Skinner, William H. Williams, and John A. Westfield. **34**: 539—1962
Player piano. Paul F. Murdock. **34**: 538—1962
Pneumatic action for player pianos. Joseph Sauerland. **34**: 538—1962
Process of making piano string. Robert E. Johnson. **34**: 1032—1962
Toy musical instrument. William Kratt. **34**: 877—1962
Uniform piano keyboard. James W. Lucas. **34**: 1158—1962

6.7 Violin Family. Stringed Instruments except Keyboard Type

PATENTS
Bass bar for stringed musical instrument. Adam Szymanski. **34**: 878—1962
Chord playing attachment for stringed musical instruments. Rulon W. Brimhall. **34**: 877—1962
Device for aiding students of stringed instruments. Joyce Semoneit. **34**: 539—1962
Electrical musical instrument. Les Paul. **34**: 878—1962

Electromagnetic pickup for lute-type musical instrument. Clarence L. Fender. 34: 539—1962
Musical instrument bridge fitter. Frank Saam. 34: 1969—1962
Mute means for string musical instruments. Larry P. Allers. 34: 878—1962
Pitch-changing device for string instruments. Jean Marie Houde. 34: 159—1962
Spanish guitar with means for converting to Hawaiian guitar. Francis L. Pratt. 34: 255—1962
Stringed musical instrument. George F. Blair. 34: 539—1962
Stringed musical instrument. Quilla H. Freeman. 34: 1674—1962

6.8 Wood Winds

ABSTRACTS

Experimental check of theoretical expressions for frequency shift and minimum blowing pressure in the clarinet. John Backus. 34: 1994—1962
Variation with loudness of the harmonic structure of clarinet and bassoon tones. John Backus. 34: 717—1962

PATENTS

Reeds for woodwind instruments. Arnold R. Brilhart. 34: 378—1962

6.9 Electrical Musical Instruments

LETTERS TO THE EDITOR

Comment on "Aid to music composition employing a random probability system." J. Murray Barbour. 34: 128—1962

PATENTS

Accordion-organ. Fred N. Searles and Ralph G. Studemann. 34: 1034—1962
Apparatus for producing tremolo effects. Clarence L. Fender. 34: 1034—1962
Apparatus for tone quality control. James Paul White. 34: 1676—1962
Apparatus for translating electrical musical tone signals into sound. John M. Hanert. 34: 1033—1962
Artificial reverberation apparatus. Herbert E. Meinema and Herbert H. Canfield. 34: 878—1962
Artificial reverberation control apparatus. Laurens Hammond. 34: 379—1962
Audio modulation system. William C. Wayne, Jr. 34: 1675—1962
Automatic electronic organ. Hyman Hurvitz. 34: 1675—1962
Chimes. Clarence J. Gercken. 34: 542—1962
Chord organ. Stanley Cutler and Byron Roy Hunt. 34: 541—1962
Chord selectors for chord organs. Frayne L. Combs. 34: 878—1962
Cross-wired organ system and rectifier therefor. Donald J. Leslie. 34: 540—1962
Electrical musical instrument. Walter J. Anderson. 34: 1033—1962
Electrical musical instrument. Joseph R. Kappel. 34: 541—1962
Electrical musical instrument in the nature of a piano. Harold B. Rhodes. 34: 1033—1962
Electrical musical instruments. Jean A. Dereux. 34: 541—1962
Electrical musical instruments. Richard H. Dorf. 34: 1159—1962
Electrical musical instruments. John M. Hanert. 34: 539—1962
Electrical musical instrument with percussion apparatus. John M. Hanert. 34: 540—1962
Electric organ transposing switch. Martin M. Wick. 34: 1675—1962
Electric violin, and electromagnetic pickup therefor. Clarence L. Fender. 34: 380—1962
Electronic musical instrument. Alfred J. Bissonette and Frank J. Kramer, Jr. 34: 1313—1962
Electronic musical instrument. Thomas J. George. 34: 540—1962
Electronic musical instrument. Fred H. Osborne, John H. Riggs, and Howard G. Bauer. 34: 1313—1962
Electronic musical instrument and method. Paul A. Pearson. 34: 1313—1962
Electronic musical instrument control system. Thomas J. George. 34: 541—1962
Electronic musical instruments. Richard H. Peterson. 34: 1314—1962
Electronic musical instrument with photoelectric switching. Merton D. Corwin. 34: 1675—1962
Electronic musical reed instruments. Jesse Jacobson. 34: 540—1962
Electronic organ. George H. Hadden and Richard H. Campbell, Jr. 34: 1675—1962
Electronic organ and the like having chiff and other tonal characteristic producing means. Jerome Markowitz. 34: 1314—1962
Electronic organ and the like having transient tonal characteristic producing means. Jerome Markowitz. 34: 1314—1962
Electronic piano. Clifford W. Andersen. 34: 379, 1034—1962
Electronic piano. Benjamin F. Miessner. 34: 539, 1033—1962
Electronic piano. Hale J. Sabine. 34: 1034—1962
Electronic tone generator system. Edward J. Henley. 34: 379—1962
Electropiano. Edward M. Jones. 34: 1034—1962
Frequency control means for monophonic tone generating oscillator. Don L. Bonham. 34: 378—1962
Frequency division system for electronic organ or the like. Ross F. De Roy. 34: 1034—1962
Keyboard switch. Stanley Cutler and Walter E. Sanders. 34: 541—1962
Key switching and octave coupling mechanism. Spencer W. McKellip. 34: 539—1962
Key tuning apparatus for electronic musical instruments. Richard H. Peterson. 34: 379—1962
Mechanism for playing chords. Fred H. Osborne, Howard G. Bauer, and Robert S. Tuttle. 34: 1033—1962
Multiple vibrato system. William C. Wayne, Jr. 34: 1675—1962
Musical instrument. Ervin M. Wilson. 34: 1675—1962
Percussion tone electrical musical instrument. John M. Hanert. 34: 380 (2 patents)—1962
Photoelectric musical instruments and the like. Edward M. Jones and Wesley Love. 34: 1159—1962
Piano capacitor reactor. Charles Clifford Nolder and Leslie Phillips. 34: 1034—1962
Pickups for electrical musical instrument. Jacob T. Kunz. 34: 379—1962
Polyphonic percussion control apparatus. John M. Hanert. 34: 1033—1962
String mounted key for electronic musical instrument. Ferdinand Machalek and Ludmila Machalek. 34: 541—1962
Tone generating assembly for electronic piano. Clifford W. Andersen. 34: 540—1962
Tone generator. Clifford W. Andersen. 34: 540—1962
Transient filter. Robert J. Ziehlke. 34: 1314—1962
Transposition apparatus for electrical musical instrument. Harald E. W. Bode. 34: 1159—1962

Tremolo. Joseph Rice. 34: 1033—1962
Tremolo producing means for an electrical musical instrument. Robert J. Ziehlke. 34: 1314—1962
Tuned reed. Benjamin F. Miessner. 34: 378—1962
Vibrato-oscillator for electronic organs or the like. Donald J. Leslie. 34: 1674—1962
Vibrato producing circuit for electronic musical instrument. Solomon Heytow and Richard H. Peterson. 34: 379—1962

6.10 Reed Organs. Accordions, Harmonicas

PATENTS
Accordion microphone control support. Edward H. Terlinde. 34: 542—1962
Accordion pickup. Clinton A. Monfelt. 34: 542—1962
Chord type reed organ. Finn H. Magnus. 34: 1314—1962
Musical instrument. James J. Borell. 34: 1035—1962
Portable organ. Mario Pancotti. 34: 1676—1962
Wind actuated musical instrument. Philippe Seiller and André Borel. 34: 1676—1962
Wind instrument. Walter Hohner. 34: 711—1962

7. Noise

7.1 General, Unclassified

PAPERS
Acoustic signal detection by simple correlators in the presence of non-Gaussian noise. I. Signal-to-noise ratios and canonical forms. David Middleton. 34: 1598—1962
Bandwidth error of symmetrical bandpass filters used for analysis of noise and vibration. L. W. Sepmeyer. 34: 1653—1962
Crest and extremal statistics of a square-law-derived random process. T. I. Smits, D. A. Smith, and R. F. Lambert. 34: 1859—1962
Effects of background noise on auditory detection of noise bursts. David M. Green and Susan T. Sewall. 34: 1207—1962
Optimum signal processing of three-dimensional arrays operating on Gaussian signals and noise. Finn Bryn. 34: 289—1962
Problems associated with the measurement of ambient-noise directivity by means of linear additive arrays. Julian Stone. 34: 328—1962
Rate functions for auditory nerve responses to bursts of noise: effect of changes in stimulus parameters. W. T. Peake, N. Y-S. Kiang, and M. H. Goldstein, Jr. 34: 571—1962
Studies on the aural reflex. II. Reduction of temporary threshold shift from intermittent noise by reflex activity; implications for damage-risk criteria. W. Dixon Ward. 34: 234—1962

ABSTRACTS
Ambient sea-noise directivity. Carle A. Forster. 34: 1986—1962
Amplitude distribution of broadband-rectified and finite time-averaged Gaussian noise. A. F. Wittenborn. 34: 742—1962
Boundary-layer noise transmission through ribbed structures. Richard H. Lyon. 34: 721—1962
Combination of noise and pure-tone masking. David M. Green. 34: 745—1962
Contributions of meaning dynamics to architectural practices and to noise-exposure considerations. Ernest Colton. 34: 2000—1962
Damage-risk criteria for line spectra. W. Dixon Ward. 34: 720—1962
Deep ocean-noise model determined by a deep-line array. Jack G. Watson. 34: 1986—1962
Effect of boundaries on the spatial correlation of noise fields. Benjamin F. Cron and Charles H. Sherman. 34: 1986—1962
Environmental problems with acoustic- and vibration-measurement system components. Richard W. Peverley, J. A. Nunley, and A. L. Grabbe. 34: 1989—1962
Nonlinear spherical and cylindrical sound waves. Nonlinear propagation of random noise. Hans L. Oestreicher. 34: 723—1962
Optimum shading for a conventional acoustic line array of receiving elements operating in a combined-noise environment. A. H. Lubell. 34: 1984—1962
Response of beams to noise fields. R. F. Lambert, D. H. Tack, and G. T. Fang. 34: 731—1962
Spectrum levels and distribution functions of ambient noise under Arctic Sea ice. A. R. Milne and J. H. Ganton. 34: 1986—1962
Vibration response of beam-column structures. D. F. Miller. 34: 731—1962

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Ultrasonic phase microscopy. E. E. Suckling and S. Ben-Zvi. **34**: 1277—1962
Variations of cavitation intensity in an ultrasonic generator. Alfred Weissler and Elizabeth J. Hine. **34**: 130—1962

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Electronic imaging of ultrasonic fields. W. E. Lawrie and K. E. Feith. **34**: 719—1962
Inherent limitations of piezoelectric transducers. F. Schloss. **34**: 719—1962
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Process for ultrasonic quenching of steel articles. Thomas J. Bulat. **34**: 381—1962
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Sonic thickness measuring apparatus. Henry N. Nerwin, Jr. **34**: 381—1962
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PAPERS
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PAPERS
Generation and detection of ultra-high-frequency sound in liquids. Floyd Dunn and John E. Breyer. **34**: 775—1962
Ultrasonic absorption in toluene in the kilocycle region. M. Cerceo, R. Meister, and T. Litovitz. **34**: 259—1962
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Method for the accurate measurement of sound velocity in liquids. H. J. McSkimin and H. B. Holton. **34**: 1984—1962
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Solid mixtures with specified impedances and high attenuation for ultrasonic waves. A. Lutsch. **34**: 131—1962
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Attenuation in heavily doped p-type silicon due to electron-phonon interaction. Warren P. Mason and Thomas B. Bateman. **34**: 2003—1962
Dispersion of axially symmetric waves in composite, elastic rods. H. D. McNiven, A. H. Shah, and J. L. Sackman. **34**: 1990—1962
Dynamic stress-strain characteristics. Robert W. Benson. **34**: 715—1962
Investigation of the transmission of ultrasound across an interface under pressure. Robert O. Fehr. **34**: 747—1962
Measurement of the sound velocity and loss factor of polystyrene from 60 kc to 1 Mc by a pulse echo technique. James N. Lange, Jr. **34**: 714—1962
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10.7 Physical Effects of Ultrasonic Waves. (See also 10.2.)

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Variations of cavitation intensity in an ultrasonic generator. Alfred Weissler and Elizabeth J. Hine. 34: 130—1962

10.9 Biochemical Effects of Ultrasonic Waves

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11. Waves and Vibrations. (See also 13.)

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Analysis of the middle-ear function. Part I: Input impedance. J. Zwislocki. 34: 1514—1962
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Response of ribbed panels to reverberant acoustic fields. Gideon Maidanik. 34: 809—1962
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11.2 Diffraction. Interference. Scattering. Reflection. Echoes, Standing Waves

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Correlation properties of flexural waves in long thin bars. Earl F. Winter and David Alan Bies. 34: 472—1962
Efficiency of circular sources and circular arrays of point sources with linear phase variation. T. F. W. Embleton and G. J. Thiessen. 34: 788—1962
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Experimental investigation of an end-fire array. J. L. S. Bellin and R. T. Beyer. 34: 1051—1962
Interactions between sound waves. L. Wallace Dean, III. 34: 1039—1962
Measurement of the 25°C zero-field elastic moduli of quartz by high-frequency plane-wave propagation. H. J. McSkimin. 34: 1271—1962
Measurements of absorption coefficients on plates. Manfred Heckl. 34: 803—1962
Model experiments with acoustic van Atta reflectors. Klaus Walther. 34: 665—1962
Mutual interaction between two spheres in a plane sound field. T. F. W. Embleton. 34: 1714—1962
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Range dependence of acoustic fluctuations in a randomly inhomogeneous medium. Robert G. Stone and David Mintzer. **34**: 647—1962
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Response of ribbed panels to reverberant acoustic fields. Gideon Maidanik. **34**: 809—1962

11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

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Experimental study of high-frequency sound propagation in a randomly inhomogeneous medium. R. G. Stone and D. Mintzer. **34**: 735—1962
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Theorem concerning the aerodynamic sound of a free inviscid flow. Alan Powell. **34**: 735—1962
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11.4 Radiation from Vibrating Objects. Acoustic Impedance. (See also 5.3, 12.3Z, and 13.7.)

PAPERS
Efficiency of circular sources and circular arrays of point sources with linear phase variation. T. F. W. Embleton and G. J. Thiessen. **34**: 788—1962
Infinite array of circular pistons on a rigid plane baffle. V. Mangulis. **34**: 1558—1962
Investigation of the line-and-cone underwater sound transducer. D. L. Bair and C. M. McKinney. **34**: 1576—1962
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PAPERS
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Determination of the nonlinearity parameter B/A for water and m-xylene. Laszlo Adler and E. A. Hiedemann. **34**: 410—1962
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11.6.1 Sources of Sound. (See also 7.8 and 11.4.)

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Delayed acoustic velocity signal transmission. Allen A. Stripling. 34: 1816—1962
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Isolator for sonic earth boring drill. Arthur A. Mathewson, Jr. John P. Selberg, and Robert W. Leonard. 34: 879—1962
Means for producing a low frequency seismic signal. George M. Pavey, Jr. 34: 1817—1962
Method and apparatus for continuous geophysical exploration. James E. Hawkins and Stanley W. Wilcox. 34: 160—1962
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Method and system for continuous seismic surveying. William B. Huckabay. 34: 1970—1962
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Method of and apparatus for producing and transmitting borehole signals. Glen Peterson. 34: 1816—1962
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Methods and apparatus for eliminating singing components from seismic signals. Wayne W. Grannemann. 34: 879—1962
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System for anchoring and transporting a seismic vibrator. Frank Clynch. 34: 1817—1962
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Well logging system. Edgar T. Howes. 34: 160—1962
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13. Underwater Sound

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Acoustic signal detection by simple correlators in the presence of non-Gaussian noise. I. Signal-to-noise ratios and canonical forms. David Middleton. 34: 1598—1962
Effect of correlated phase fluctuation on array performance. Helen G. Berman and Alan Berman. 34: 555—1962
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Guy S. Harris elected Chairman of Navy Underwater Sound Advisory Group. **34**: 866—1962
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NOL is developing acoustics research vessel. **34**: 358—1962
Permanent deep-water biological acoustic-video research station. **34**: 1281—1962
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13.2 Propagation of Sound in Water. Attenuation. Fluctuation

PAPERS
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Effect of correlated phase fluctuation on array performance. Helen G. Berman and Alan Berman. **34**: 555—1962
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Comments on "Long-range shallow-water transmission." by K. V. Mackenzie. R. A. Frosch. **34**: 682—1962
Comments on "Simplified ray-tracing computations," by Charles S. Mooney. M. Klerer. **34**: 1278—1962
Further remarks on "Long-range shallow-water transmission." K. V. Mackenzie. **34**: 682—1962
Generation of infrasound by ocean waves. Fred B. Daniels. **34**: 352—1962
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Experimental observations of phase and amplitude fluctuation in direct transmission in the sea. S. R. Murphy, T. E. Ewart, and G. R. Garrison. **34**: 1980—1962
Fluctuations in the reflectivity of the ocean surface. M. Vertner Brown. **34**: 1979—1962
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Measurement of acoustic coherence. A. Shapiro. **34**: 742—1962
Measurement of the effect of water correlation. David S. Potter and Miles W. McLennan. **34**: 1980—1962
Measurements of high-frequency pulse attenuation and bottom backscattering in the sea. E. G. McLeroy. **34**: 1986—1962
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Statistical model for investigating the physical parameters of the ocean. Robert L. Shaffer. **34**: 1974—1962
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13.3 Velocity of Sound in Water. Refraction. Doppler Effect

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ABSTRACTS
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Use of sound velocimeter in the deep ocean. Norman W. Lord. **34**: 1974(T)—1962
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SUBTITLES
Refraction of sound in water. K. V. Mackenzie. **34**: 66—1962
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Velocity of sound in sea water. Melvin A. Pedersen. **34**: 1198—1962

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13.4 Reflection. Echoes. Structures for Absorbing Sound in Water

PAPERS
Analysis of echoes from a solid elastic sphere in water. Robert Hickling. **34**: 1582—1962
Comparison of experimental and theoretical image interference in deep-water acoustics. Melvin A. Pedersen. **34**: 1197—1962
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Statistical properties of $\int p^2 dt$ for pulsed CW reflected from a rough sea surface. R. Alfred Saenger. **34**: 1980—1962

13.5 Interference. Diffraction

PAPERS
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13.6 Scattering. Reverberation in Water

PAPERS
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Wave theory for surface and bottom acoustic reverberation. W. J. Toulis. **34**: 1987—1962

SUBTITLES
Scattering from rough surface. R. P. Chapman and J. H. Harris. **34**: 1593—1962

13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance. (See also 5.3, 11.4, and 12.3Z.)

PAPERS

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13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, Cavitation, or Splashes

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13.9. Noise in Water. Ship Noise. Biological Noises

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ABSTRACTS

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NEWS

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13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation. (See also 11.5 and 12.5).

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ABSTRACTS

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ABSTRACTS

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PATENTS

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Acoustic detector. Charles A. Hisserich and Donald G. Reed. **34**: 1677—1962

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Apparatus for sweeping acoustic mines. John C. Watson. **34**: 161—1962

Audible fishing lure. Henry Pankuch. **34**: 382—1962

Simulator for echo ranging. Sidney Bertram. **34**: 880—1962

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Sound responsive coded signal demolition device. James M. Kendall. **34**: 1677—1962

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NEWS

Hydrophone round robin calibration. **34**: 992—1962

13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar

PAPERS

Effect of correlated phase fluctuation on array performance. Helen G. Berman and Alan Berman. **34**: 555—1962

Generalized form of the sonar equations. R. J. Urick. **34**: 547—1962

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Use of the modulation properties of periodic sampling in digital spectral analyses. Hamilton C. Walker. **34**: 1982—1962

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Directional sound apparatus. Melvin E. Chun. **34**: 881—1962
Echo detection with delayed read out. Roy William George Haslett, Peter Roy Hopkin, and Norman Henry Benning. **34**: 1160—1962
Echo firing device for a depth charge. Waldron S. MacDonald. **34**: 1038—1962
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Echo ranging system. Louis R. Padberg, Jr., Frederick D. Parker, and Milton P. Papineau. **34**: 1818—1962
Echo sounder for ships. Hans Bolzmann. **34**: 881—1962
Echo sounding system. Hans Kietz and Willy Kunze. **34**: 1038—1962
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Enabling device for acoustic torpedo homing systems. Dwight L. Supernaw. **34**: 881—1962
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High speed sonar scanning apparatus. Waldo H. Kliever and Wayne M. Ross. **34**: 162—1962
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Steering apparatus for torpedoes. R. Clark Jones. **34**: 257—1962
System for displaying sonic echoes from underwater targets. Julius Hagemann. **34**: 881—1962
Torpedo echo steering system. Harvey Brooks. **34**: 1677—1962
Torpedo steering system. R. Clark Jones. **34**: 257, 258—1962
Training aid system for wave detection equipment. Donald G. C. Hare. **34**: 161—1962
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Underwater transmitter. Fred M. Mayes. **34**: 712—1962
Velocity compensating apparatus for sonar systems. Robert E. Peterson. **34**: 382—1962

NEWS
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13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

PAPERS
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Cavity-loaded piston resonators. Claude C. Sims and T. A. Henriquez. **34**: 1204—1962
Determination of far-field characteristics of large underwater sound transducers from near-field measurements. D. D. Baker. **34**: 1737—1962
Diagnosis and cure of erratic velocity distributions in sonar projector arrays. David L. Carson. **34**: 1191—1962
Hydrophone calibration in a vibrating column of liquid. F. Schloss and M. Strasberg. **34**: 958—1962
Investigation of the line-and-cone underwater sound transducer. D. L. Baird and C. M. McKinney. **34**: 1576—1962
Preloading of acoustic transducers for high-pressure operation. Arthur D. Brickman. **34**: 305—1962
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Theory of a passive, reversible, distributed-coupling transducer. W. James Trott. **34**: 333—1962

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Hydrophone design for a receiving system in which amplifier noise is dominant. Ralph S. Woollett. **34**: 522—1962
Pressure-balanced high-pressure hydrophone. Edward T. O'Neill. **34**: 1661—1962
Reciprocity parameters derived from radiated power. W. James Trott. **34**: 989—1962

ABSTRACTS
Achieving transducer pressure release with compliant-metal tubes. Norman D. Miller and Gordon A. Vincent. **34**: 716—1962
Computation of far-field characteristics of a transducer from measurements made in a reflective tank. D. D. Baker. **34**: 716—1962
Computation of far-field characteristics of a transducer from near-field measurements made in a reflective tank. D. D. Baker and K. McCormack. **34**: 1972—1962
Effect of near field on cavitation limit of transducers. Charles H. Sherman. **34**: 1992—1962
Effect of the size and shape of a hydrophone on the received flow-noise level. E. J. Skudrzyk and G. Haddle. **34**: 715—1962
Electroacoustic sensitivity of pressure-equalized spherical and cylindrical hydrophones. Frank J. Lukman. **34**: 1971—1962
Hydrophone calibration in a vibrating column of liquid. F. Schloss and M. Strasberg. **34**: 715—1962
Hydrophone preamplifier for use in multiple hydrophone arrays. B. F. Weiss and L. M. Barber. **34**: 716—1962
Measurement of seiche activity in San Diego Bay. Joseph L. Collins and Glen E. Ellis. **34**: 715—1962
Resonant transducers in liquid-filled cylinders. Claude C. Sims and T. A. Henriquez. **34**: 1992—1962
Sensitivity and beam-pattern effects of biological marine growths on hydrophones. R. J. Urick. **34**: 1992—1962
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Apparatus for producing sound waves. Harold E. Sawyer. **34**: 1818—1962
Compensated hydrophone. Wilbur T. Harris. **34**: 1160—1962
Compliant acoustic radiating means. Wilbur T. Harris. **34**: 1160—1962

Electromagnetic transducer. Wilbur T. Harris. **34**: 1318—1962
Hydrodynamically balanced towing apparatus for maintaining hydrophones vertically oriented. Stephen L. Stillman, Jr. **34**: 1677—1962
Hydrophone with spaced electromechanical ceramic elements. Glenn N. Howatt. **34**: 1677—1962
Incremental hydrobaraphone. Edward L. Peters, Marvin S. Weinstein, and John H. Buehler. **34**: 382—1962
Low-frequency hydrophone. Donald W. Kuester. **34**: 546 1962
Spherical acoustical lens system for focusing underwater sound. William J. Toulis. **34**: 1038—1962
Structure for use in an electrodynamic transducer. Wilbur T. Harris. **34**: 1678—1962
Uni-directional high level low frequency sound source. Louis R. Padberg, Jr. **34**: 712—1962